VIRGINIA MEDICAL MONTHLY

OFFICIAL PUBLICATION OF THE MEDICAL SOCIETY OF VIRGINIA

70th Annual Meeting, Medical Society of Virginia, in Richmond, October 3-5, 1939.

Vol. 66, No. 4. WHOLE No. 1042. RICHMOND, VA., APRIL, 1939 $2.00 A YEAR 25 CENTS A COPY

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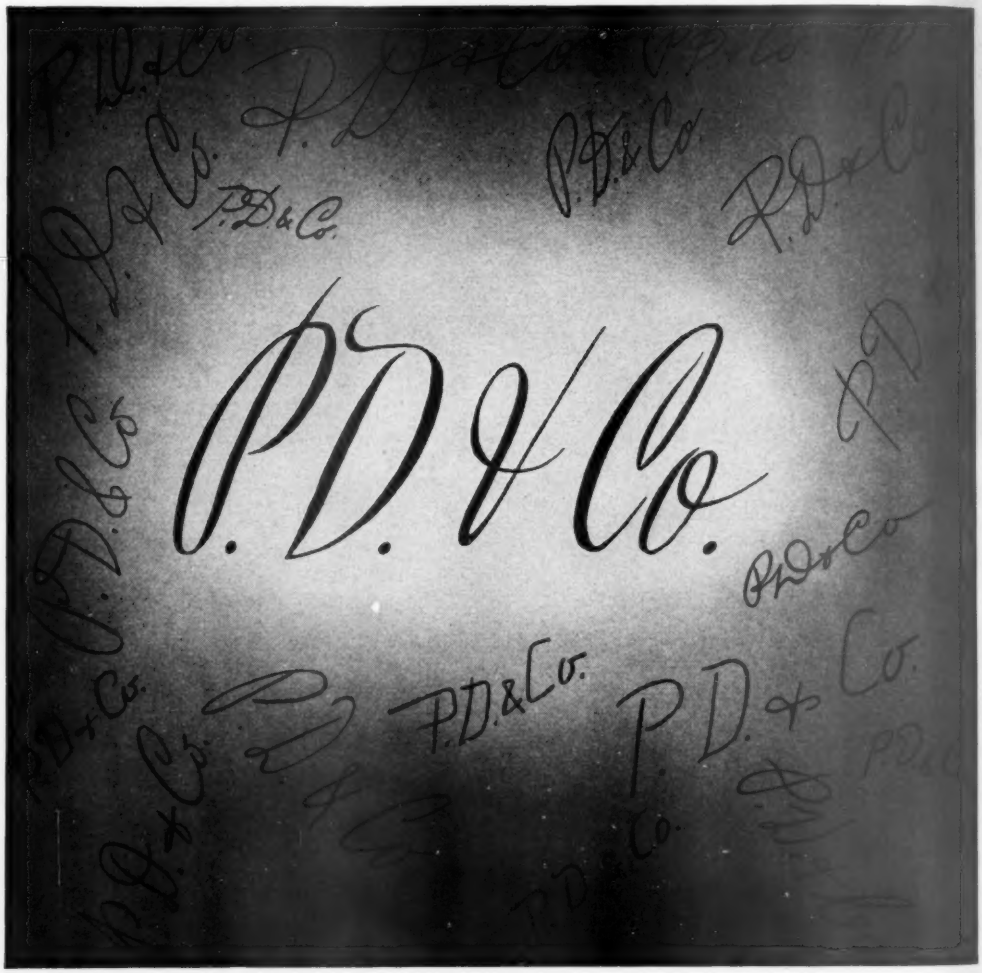

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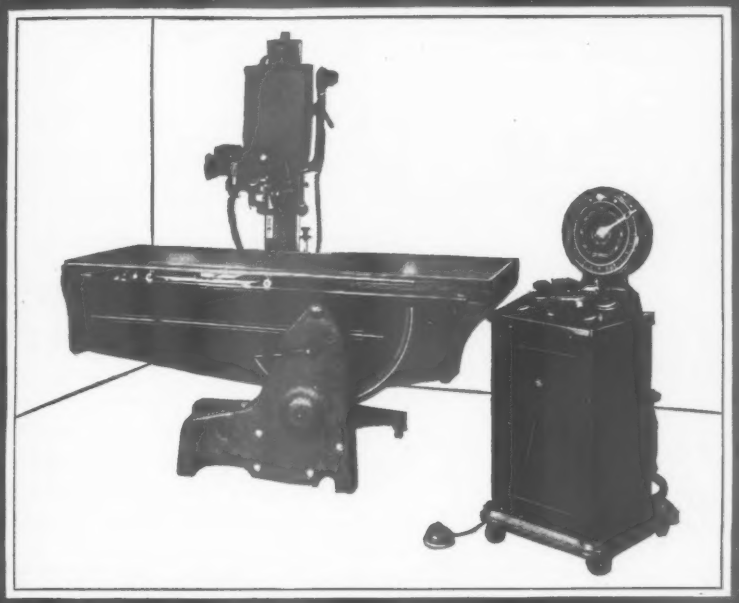

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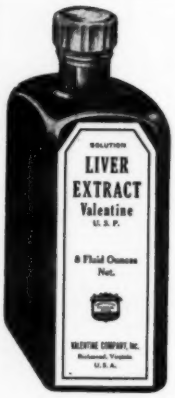

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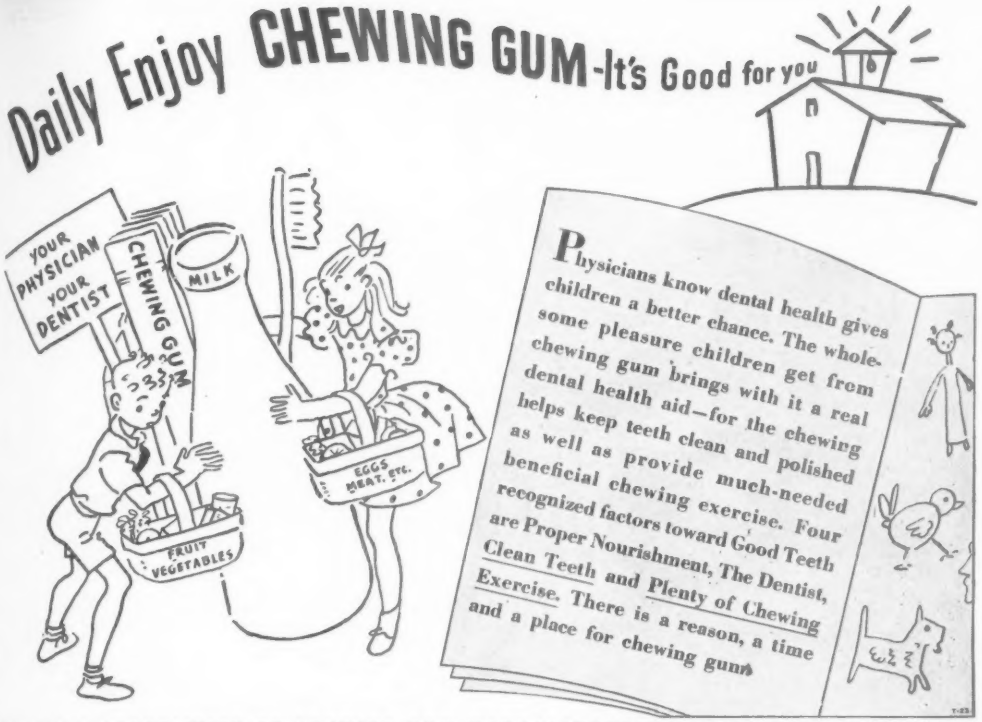

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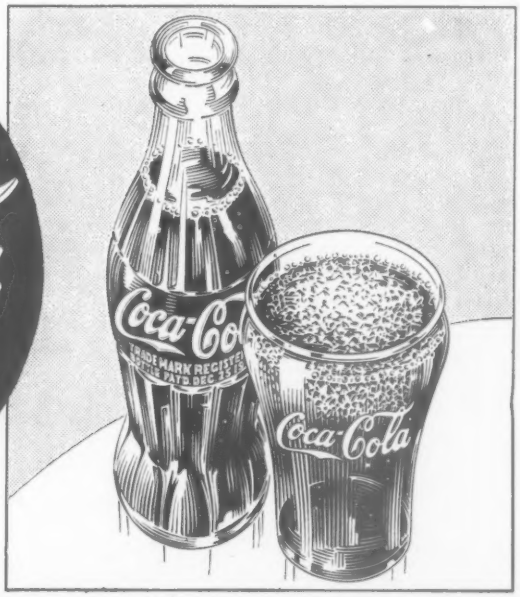

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(1) 1937. Am. J. Digestive Diseases Nutr. 4, 240.
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(3) 1932. J. Pediatrics 1, 749.
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RICHMOND, VA., APRIL, 1939

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A SIMPLIFIED CLASSIFICATION OF COMMERCIAL PREPARATIONS OF SEX HORMONES.*

W. G. Crockett, M.S., Phar.D.,
Richmond, Virginia.

The increasing demand for sex hormones and the multiplicity of names under which they are being marketed is proving highly confusing to physicians who wish to use them and to pharmacists who supply them. Inquiries made in drug stores reveal that doctors frequently request literature from druggists setting forth the names of these products, their professed potencies, their differences, uses, etc. This paper is an attempt to clarify some of the confusion. The story of the sex hormones is told here in non-technical language so that an elementary conception of the subject may be obtained by those who have given little thought to it.†

Hormones are by no means new to us. For years we have dealt with epinephrine, insulin, thyroxin, and others. They have been defined as "substances produced by the cells of the ductless glands (endocrine glands) in various parts of the body and carried by the blood stream to other parts of the body". They affect the growth and activity of certain organs, and hence of the body as a whole. The sex hormones are produced for the most part by the anterior portion of the pituitary gland, by the ovaries and by the testes. Originally sex hormones were obtained chiefly from the urine of pregnant women. Some of them are now made synthetically.

Since the pituitary gland possesses so much control over the other endocrine glands and their secretions, it has been called "the leader of the endocrine orchestra". This gland, about the size of a pea, is located at the base of the brain. It is divided into two portions, the anterior and the posterior. Each portion secretes hormones. It is the anterior portion which concerns us in this paper, as it secretes the gonadotropic hormone.

This hormone stimulates the testes and ovaries, and thereby aids in regulating menstruation and producing normal sexual development. It is available commercially but its chemical nature has not been ascertained. There is available also a hormone similar to it which is called the "anterior pituitary-like" hormone or "placental prolan", which is obtainable from the urine of pregnant women and pregnant mares. Apparently it is formed by the placenta. Antuitrin-S (P.D. & Co.) is an illustration of this hormone. It is recommended for use in the treatment of menstrual disorders, impotence, undescended testicles, delayed development of the sexual organs, etc.

Table No. 1 lists in alphabetical order the manufacturers known to the writer who market preparations of the "anterior pituitary-like" hormone. It sets forth also the manufacturer's name for his product, its potency and the size of the containers in which it is marketed. Table No. 2 lists anterior pituitary extracts which contain the gonadotropic hormone.

Table No. 1 may be useful in answering certain questions with regard to the way in which these products are marketed. The reader should not assume, however, that products declaring the same number of rat units are of the same strength. In this connection a quotation from a pamphlet on Antuitrin-S, by Parke, Davis & Co., is helpful.

"The term 'rat unit' as applied to therapeutic preparations of the anterior pituitary-like hormone of pregnancy urine may designate different potencies in different products. The present condition is no doubt due to the fact that there is no national or

*From the School of Pharmacy, Medical College of Virginia, Richmond, Va.

†In order that this information may be made available to Virginia pharmacists, reprints of this paper will be mailed to them upon request. The one who reads this article in the Virginia Medical Monthly should bear in mind that certain portions of it are not intended for him so much as for the pharmacist who will later read the reprint.

TABLE No. 1
THE ANTERIOR PITUITARY-LIKE HORMONE (PROLAN).
(Obtainable from pregnancy urine or the placenta).

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY IN RAT UNITS
Ayerst, McKenna and Harrison	A. P. L.	5 and 10 cc vials, 500 R.U. (Collip) per cc.
Endo Products	Entromone	10 cc. vial, 125 R.U. per cc. 50 " " " " " " 10 " " 500 " " "
Parke, Davis	Antuitrin-S (Apoidin)	10 cc. vial, 100 R.U. per cc. 50 " " " " " " 10 " " 500 " " "
Roche-Organon	Pregnyl	ampules, dry powder. 1 cc, 100 R.U. each. 1 " 500 " "
Squibb	Follutein	ampules each containing 500, 1,000 or 5,000 R.U. Dilute each to 100 or 1,000 R.U. per cc. before administering.
Winthrop	Korotron (formerly called Antophysin)	ampules, dry powder. 100, 500, 1,000 and 5,000 R.U. each.

international unit, as yet, by which such products should be standardized. . . . There are at present three methods of assay in common use. These three methods make use of rats and express their results in terms of 'rat units'. That these various 'rat units' cannot be directly compared is readily evident when the methods of determining them are considered. . . . Direct comparison of products on a 'unit for unit' basis is impossible. The physician has but two criteria to guide him in his selection of therapeutic preparations of this hormone—his own clinical experience, and his confidence in the skill and integrity of the producer of a given product."

Besides the gonadotropic hormone the anterior pituitary produces other hormones such as the thyrotropic (thyroid stimulating) hormone, the growth hormone, the lactogenic hormone (stimulating milk secretion) and the adrenotropic (adrenal stimulating) hormone.

Whereas Table No. 1 presented commercial products of the anterior pituitary-like hormone (obtained from pregnancy urine), Table No. 2 treats of those which are made by extracting the above-mentioned principles from the anterior pituitary gland. The products of Table No. 2 may differ widely in composition due to differences in the methods of manufacture. They are not necessarily comparable on a "unit for unit" basis, as is shown in the footnotes of Table No. 2. They are recommended in the treatment of dwarfism, menstrual disorders, sexual underdevelopment, etc.

Proceeding now to the ovaries we find that they secrete two well known hormones, (1) the estrogenic hormone, estradiol, and (2) the corpus luteum hormone, progesterone. Each of these has several names which will be considered later. With reference to the purposes which these hormones serve in the female, we find that in early life the estrogenic hormone stimulates the growth of the female sex organs, the development of the breasts and the distribution of hair. From puberty to the menopause it is secreted in varying quantities from the end of one menstruation to the beginning of the next. During these approximately twenty-four day periods it prepares the uterus for pregnancy or for menstruation, by causing a pronounced growth or thickening of the mucous membrane on the inner wall of the uterus.

About the tenth day following each menstruation an egg is released by the ovary and starts through the fallopian tube to the uterus. Several days are required for its passage. Shortly after its release, the ovary begins manufacturing a yellow substance called the corpus luteum, and this in turn secretes the corpus luteum hormone, namely, progesterone. This hormone is carried by the blood to the uterus and prepares the thickened mucous membrane on its inner wall for the reception of the fertilized egg, i.e., for pregnancy. If fertilization does not take place, the thickened mucous membrane sloughs, thereby producing menstruation about twenty-four days after the last menstrual period ceased. At this stage the manufacture and secretion of the corpus luteum hor-

TABLE NO. 2
ANTERIOR PITUITARY GLAND EXTRACTION PRODUCTS.

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY
Armour	Gonadotropic Factor	10 cc. vials, 300 Rat Units (Collip) per cc. (See footnote No. 1.)
	Polyansyn	10 cc. vials, 1 cc. represents 500 mg. fresh glandular tissue. "Contains all the hormones of anterior lobe of bovine pituitary".
	Ovarian-Anterior Pituitary Liquid	2 cc. ampules. Contains anterior pituitary gonadotropic factors and ovarian extractives.
Ayerst, McKenna and Harrison	Gonadotropic Factor	At least 300 R.U. (Collip) per cc. (See footnote No. 1.)
	Polyansyn	5 and 10 cc. vials, 1 cc. represents 500 mg. of fresh bovine gland. Contains growth, adrenotropic, thyrotropic, lactogenic and a little gonadotropic factors.
	Growth Complex	5 and 10 cc. vials. 1 cc. contains 100 Collip R.U. growth factor, 10 Collip R.U. adrenotropic and lactogenic factors. (Footnote No. 2.)
Chappel	Prephysin (Anterior-Pituitary Gonadotropic Hormone)	5 cc. vials, 25 units (about 100 Collip clinical units) per cc. (Footnote No. 3.)
	High Potent Prephysin	100 units per cc.
Lilly	Pituitary Extract Anterior Lobe	1 cc. ampules. Each represents 1.2 Gm. fresh anterior lobe.
Parke, Davis	Antuitrin-G	20 cc. vials, 10 R.U. growth hormone per cc. (Footnote No. 4.)
Roche-Organon	Ambinon	1 cc. ampules. Each contains 50 R.U. pituitary gonadotropic hormone and 200 guinea pig units pituitary thyrotropic hormone. (Footnote No. 5.)
Searle	Gynatrin	5 and 15 cc. vials, 100 R.U. gonadotropic hormone per cc. (Footnote No. 6.)
Sharp & Dohme	Pituitary Body Anterior Lobe Desiccated	1 cc. ampules. Each contains the water soluble extract from .2 Gm. desiccated anterior lobe.
Squibb	Anterior Pituitary Extract	20 cc. vials containing 200 growth units, also thyrotropic and gonadotropic factors. (Footnote No. 7.)
Wilson Laboratories	Phyone	10 and 30 cc vials. 1 cc. is equivalent to .133 Gm. fresh anterior tissue assayed for presence of growth hormone, and 1 to 2 units of thyrotropic hormone. Available for experimental clinical use only.

FOOTNOTES TO TABLE NO. 2

(1) One unit is one-tenth of that amount, which, when administered daily, in three divided doses, for three days, to a group of at least ten twenty-one-day old female rats, each weighing between thirty and forty grams, produces ovaries having a combined weight of thirty-five milligrams seventy-two hours after the first injection.

(2) Growth Factor: One unit is that amount, which, when administered daily in two divided doses over a period of ten to fifteen days, by intraperitoneal injection into recently hypophysectomized but otherwise untreated rats weighing eighty to 120 grams, causes an increase in body weight of one gram per day.

(3) One unit is that amount which, dissolved in 1½ cc. of liquid and injected in six injections (¼ cc. per injection) over a period of three days into immature rats (twenty-one days old) brings about an increase in the weight of the ovaries from 50 per cent to 100 per cent, as found in autopsy at the end of the fifth day. It is to be noted that this unit represents a potency equivalent to about four Collip clinical units.

(4) A rat unit of Antuitrin-G is defined as the minimal daily amount which when injected intraperitoneally into a mature female rat will cause an average daily increase of 1 per cent in body weight over a period of at least ten days.

(5) One rat unit is the smallest amount of pituitary extract which, when combined with five rat units of Pregnyl, increases the average ovarian weight to 20 mg. in the test animals.

(6) Immature female white rats weighing thirty-five to forty grams, and less than thirty days old are given six equal subcutaneous injections, divided into two each day for a period of three days. On the morning of the fifth day, the animals are autopsied. Many animals are used for each test and at least 60 per cent must show a marked increase in the size of the ovaries and uterus, coupled with follicular maturation and luteinization in the ovary. One unit is defined as the smallest amount which under the conditions of the test will give this positive reaction of estrus.

(7) One growth unit is one-tenth of the minimal daily amount which, when injected each day for ten consecutive days into female rats (weighing 250 grams), will cause an increase of 10 per cent in body weight within an eleven-day period.

TABLE NO. 3
THE ESTROGENIC HORMONE

One ten-thousandth mg. of estrone (the estrogenic hormone) represents one International Unit. Stated differently, .1 mg. of estrone represents 1,000 International Units.

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY	TABLETS OR CAPSULES	VAGINAL SUPPOSITORIES
Abbott	Estrone	1 cc., .1 mg. in oil 1 cc., .2 mg. in oil 1 cc., .5 mg. in oil 1 cc., 1.0 mg. in oil		.02 mg. each .2 mg. each
	Estriol		capsules: .06 mg. each .12 mg. each	
Ayerst, McKenna and Harrison	Emmenin	4-oz. bottles for oral use, 30 day-oral units (Collip) per cc.	tablets: 120 day-oral units (Collip) each	
Endo Products	Estromone	in oil: 1 cc., 2,000 Int. U. each 1 cc., 5,000 Int. U. each 1 cc., 10,000 Int. U. each 1 cc., 50,000 Int. U. each	tablets: 1,000 Int. U. each 2,000 Int. U. each	
Lilly	Estrone	1 cc., .1 mg. in oil 1 cc., .2 mg. in oil 1 cc., 1.0 mg. in oil		.2 mg. each
	Estriol		capsules (pulvules): .06 mg. each .12 mg. each	
Parke, Davis	Theelin	Aqueous: 1 cc., .02 mg. each. in oil: 1 cc., .1 mg. each 1 cc., .2 mg. each 1 cc., .5 mg. each 1 cc., 1.0 mg. each		.2 mg. each
	Theelol		capsules (kapseals) .06 mg. each .12 mg. each	
Reed and Carnrick	Estrogenic Hormone	in oil: 1 cc., 2,000 Int. U. each 1 cc., 6,000 Int. U. each 1 cc., 10,000 Int. U. each vials: 5, 10 and 20 cc., each containing either 2,000, 6,000 or 10,000 Int. U. per cc.	tablets: 1,000 Int. U. each	
Roche-Organon	Menformon	in oil: 1 cc., 1,000 Int. U. each 1 cc., 5,000 Int. U. each vials: 5 cc., 10,000 Int. U. 5 cc., 50,000 Int. U.	tablets: 1,000 Int. U. each 10,000 Int. U. each	
	Dimenformon (estradiol)		tablets: 1/24 mg. (500 Rat. U. each) 1/6 mg. (2,000 Rat U. each)	
	(One rat unit of dimenformon (estradiol) is equivalent to approximately 5 International Units of estrone)			
	Dimenformon Benzoate (estradiol benzoate)	in oil: 1 cc., 1,750 Int. Benz. U. 1 cc., 3,500 Int. Benz. U. 1 cc., 17,500 Int. Benz. U.		
	(One International Benzoate Unit of estradiol benzoate represents several times more activity and more protracted action than one Int. U. of estrone).			

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE OR VIAL SIZE AND POTENCY	TABLETS OR CAPSULES	VAGINAL SUPPOSITORIES
Schering	Progynon-B (estradiol benzoate)	in oil: 1 cc., 500 Rat. U. each 1 cc., 1,000 Rat U. each 1 cc., 2,000 Rat U. each 1 cc., 10,000 Rat U. each		
	Progynon-DH (estradiol)	in alcohol: 10 cc. vials for oral use, .1 mg. estradiol per cc.	tablets: 1/24 mg. (500 Rat. U. each) 1/6 mg. (2,000 Rat U. each) ½ mg. (6,000 Rat U. each)	250 Rat. U. each 2,500 Rat. U. each
	Progynon-DH is marketed also in ointment as follows: (a) 200 Rat U. per Gm. (b) 1,000 Rat U. per Gm.			
Schieffelin	Pro-Follin (estradiol-17-propionate)	in oil: 1 cc., 1,000 Rat U. each 1 cc., 2,000 Rat U. each 1 cc., 5,000 Rat U. each 1 cc., 10,000 Rat U. each		
Squibb	Amniotin	in oil: 1 cc., 2,000 Int. U. each 1 cc., 10,000 Int. U. each 1 cc., 20,000 Int. U. each	capsules: 1,000 Int. U. each 2,000 Int. U. each	1,000 Int. U. each 2,000 Int. U. each
	(Amniotin in oil for nasal administration is marketed as follows: 30 cc. vial containing a total of 20,000 Int. U. 5 cc. vial containing a total of 50,000 Int. U.).			

TABLE NO. 4

THE CORPUS LUTEUM HORMONE, PROGESTERONE.
One International Unit represents one mg. of C. P. Progesterone.

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	AMPULE SIZE AND POTENCY
Endo Products	Lutromone (formerly Lutrone)	1 Int. U. each 1/2 Int. U. each 1/5 Int. U. each 1/25 Int. U. each
Lilly	Progestin	1 cc., 1 Int. U. each, in oil
Parke, Davis	Lipo-Lutin	1 cc., 1 Int. U. each, in oil 1 cc., 2 Int. U. each, in oil
Roche-Organon	Progestin	1 cc., 1 Int. U. each, in oil 1 cc., 5 Int. U. each, in oil 1 cc., 10 Int. U. each, in oil
Schering	Proluton	1 cc., 1/5 Int. U. each, in oil 1 cc., 1 Int. U. each, in oil 1 cc., 2 Int. U. each, in oil 1 cc., 5 Int. U. each, in oil 1 cc., 10 Int. U. each, in oil
Upjohn	Progestin	1 cc., containing ½ or 1 Corner rabbit unit each, in oil. (Footnote.)

FOOTNOTE: Corner rabbit units cannot be expressed in terms of International Units. The Corner rabbit unit is the minimum quantity which, divided into five equal daily doses, produces on the sixth day a degree of progestational proliferation equal to that found in the uterus on the eighth day of a normal pregnancy.

mone, progesterone, ceases until about two weeks before the next menstruation.

As stated previously, the estrogenic hormone estradiol is secreted by the ovary. This compound is broken up in the human body into estrone (theelin) and estriol (theelol) which are eliminated in the urine. All three are closely related chemically and each is referred to as " the estrogenic hormone".

They have the same therapeutic effect but differ in intensity. Estradiol is the most powerful, estrone (theelin) next, and estriol (theelol) the least potent of the three. Since estriol is the mildest, it is recommended when a small dose of estrogenic hormone a week will be sufficient. When larger doses are required a product of the estrone type may be administered. Estradiol has a prolonged action and is used in severe cases where high unit dosage is necessary. Unit for unit, oral administration of the estrogenic hormone is believed to be considerably less effective than intramuscular injection.

The consideration of sex hormones is greatly complicated by the fact that they are known by so many different names. Some of these names are in unrestricted use while others are protected. A survey of the literature and of communications from manufacturers shows that the following names or products are used synonymously with the term "estrogenic hormone": the female sex hormone, the follicular hormone, the estrogenic follicular hormone, folliculin, amniotin, estrin, estrogen, estriol, estradiol, estrone, estromone, menformon, dimenformon, dimenformon benzoate, pro-follin, progynon-B, progynon-DH, theelin, theelol, and probably others.

The estrogenic hormone is obtained from pregnancy urine or from the placenta. It is recommended for controlling menopausal symptoms, in the treatment of gonorrheal vaginitis in children, senile vaginitis, menstrual disorders, infantilism and sterility.

Table No. 3 lists certain facts with regard to the way in which manufacturers known to the writer market the estrogenic hormone.

The corpus luteum hormone, progesterone, is essential to the maintenance of pregnancy by its action on the uterine lining. It is now prepared synthetically and is recommended in cases of menstrual disorders, threatened or habitual abortion, sterility, etc. The estrogenic hormone stimulates uterine contractions; progesterone inhibits them. Table No. 4 lists certain facts with regard to the way in which manufacturers known to the writer market the corpus luteum hormone.

TABLE NO. 5
THE MALE SEX HORMONE

NAME OF MANUFACTURER	MANUFACTURER'S NAME FOR HIS PRODUCT	1 CC. AMPULES EACH CONTAINING:
Ciba	Perandren (synthetic testosterone propionate)	5 mg. in oil 10 mg in oil 25 mg. in oil
Endo Products	Virosterone ("From natural sources. All the useful androgenic hormones".)	1 capon unit (see footnote) 3 capon units 5 capon units
Roche-Organon	Neo-Hombreol (synthetic testosterone propionate) Neo-Hombreol is marketed as ointment also	5 mg. in oil 10 mg in oil 25 mg. in oil
Schering	Oreton (synthetic testosterone propionate)	5 mg. in oil 10 mg in oil 25 mg. in oil
	Oreton is supplied in ointment also, 50 gram tubes, for topical application. Each gram of ointment contains 2 mg. of testosterone propionate.	

FOOTNOTE: Capon units cannot be expressed in terms of milligrams. The capon unit is the amount of material required by injection over a period of five consecutive days to cause an increase of the capon comb (length plus height) of from 3 to 7 millimeters by the sixth day, in at least 5 out of 10 injected capons.

The male sex hormone, secreted by the testes, is known as testosterone. It undergoes a slight change in the body and is eliminated in the urine as androsterone. These two compounds have chemical formulas which are similar to each other and to those of estrone, estriol, estradiol and progesterone. Both testosterone and androsterone can be recovered from natural sources or made synthetically. The action of testosterone propionate is more intense and more prolonged than that of free testosterone. The propionate is marketed in oil for intramuscular injection. It

is recommended in the treatment of infantilism, impotence, and sterility. Table No. 5 sets forth the male hormone preparations which are known to the writer.

For the benefit of the physician it should be stated that sex hormone preparations are quite expensive. There is little likelihood that any druggist stocks all those mentioned in this paper. He carries only those which the physicians of the community are using.

The druggist should bear in mind that the use of male and female sex hormones is still in the experimental stage. Their administration may be attended with serious results. He should protect both himself and the public by refusing sale of these products except on receipt of a prescription. Their use for self-medication is fraught with danger.

THE USE OF SHOCK THERAPY IN THE TREATMENT OF THE AFFECTIVE DISORDERS.*

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The term affective disorders is used here to designate those types of mental diseases whose main characteristics are an abnormal alteration in the mood or feeling tone. Such a classification includes the disorders usually placed under the title of manic depressive psychosis as well as so-called involutional depressions and those mixed forms of depression which are so hard to differentiate from severe anxiety states. The results secured from the treatment of these conditions have always been uncertain, since the average case tends to run a self-limited course and to improve spontaneously. However, it is well recognized that the older a person is the longer course his depression is likely to run and the more unlikely it is to end in a definite cure. In general the prognosis for cases of involutional melancholia if the patient has marked somatic delusions or if his disease has lasted over four years is held to be very unfavorable. Shock therapy was used in some of the former cases not so much with the idea that the patient might not get well at some future time, but in an effort to shorten the course of his disease and to alleviate his great suffering.

Meduna[1] was the first to use metrazol in the treatment of schizophrenia. Since making his first report in 1935 he has treated numerous patients and has given over one thousand injections without any fatalities. Wahlmann,[2] in reviewing in 1936 a series of schizophrenia cases treated by this method, reported the use of metrazol in a single case of manic depressive psychosis, although the drug was given in this instance only because this individual had demonstrated a few catatonic symptoms. The patient improved after five injections of 5 cc. of a 10 per cent solution. The doctor in reporting the case apologized, however, for using the drug in the case of a manic depressive psychosis. He is probably the first to use the therapy in this type of mental disorder. The next report of the use of metrazol in affective states was made by Owensby,[3] of Atlanta, in 1938. He described in the *Commentator* the use of the drug in such conditions. Richard Young,[4] of Omaha, Nebraska, who read his results before the Neuro-Psychiatric Section of the American Medical Association last June, has also treated cases in depression by the Meduna method and there have been other reports of a similar nature. Young's work has not yet been published.

Shock therapy was instituted at the University of Virginia Hospital in March, 1937, but metrazol was not used until September of that year and its use first restricted to cases of schizophrenia. It was found, however, that insulin convulsions alleviated the agitation in cases suffering from depression. Therefore, because metrazol convulsions were considered less dangerous, they were substituted for insulin. This type of convulsion was used first in a young adult who had been suffering from a manic depressive psychosis, depressed phase, for a year and one-half. A marked improvement followed and the drug was tried also in cases of the manic phase of the psychosis. Finally, its use was extended to the treatment of the depressed form of manic depressive psychosis in older people, forty to fifty-five years of age, who were suffering from so-called involutional melancholia, a

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

mixed form of depression in which there is great agitation as well as a downward mood swing.

The results in this last group were very striking. It was soon found that some of these individuals of the older group responded rapidly to shock therapy. Indeed, improvement was practically immediate and phenomenal; sometimes four or five convulsions produced a complete remission. The patient who had been very sick was practically well in a few days. This result was found to depend somewhat on the duration of the disease. In more chronic cases it was necessary to induce fifteen or twenty convulsions before there was adequate improvement. Also, it was soon found that these immediate recoveries were often deceptive, for often in these individuals who were apparently well there was a quick return to their former state as soon as the drug effect had disappeared.

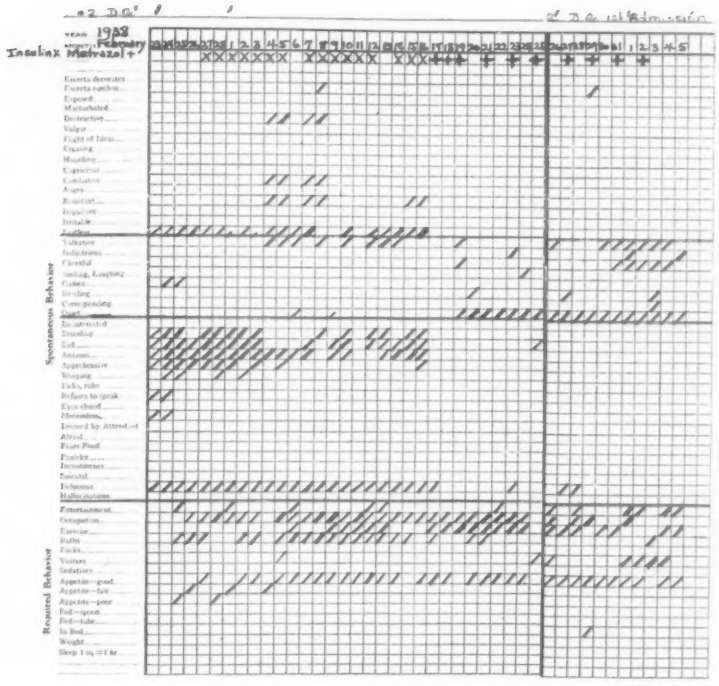
In treating patients of this age it was necessary to make especially careful studies of their physical condition. The contra-indications to convulsive therapy of this type as published by Meduna are: (a) evidence of cardiovascular disease, (b) acute febrile reaction, (c) menstruation, (d) abnormalities in the laboratory findings and (e) history of head trauma with subsequent unconsciousness. Contra-indications were rigidly observed and somewhat more conservative methods adopted in treating this older group of individuals. Gradually the following plan for handling cases of affective disorders has been developed: First, complete physical and neurological examinations, including a spinal fluid, are made. A mental examination follows, including particular studies of results suggestive of cortical damage. Next, an effort is made to estimate the degree of elation, agitation or depression from which the patient is suffering. The cardiologist is then called in to find the amount of arteriosclerosis evident in the peripheral and retinal vessels, the size of the heart and other possible evidences of cardiovascular deterioration. If these studies show no changes incompatible with the age of the patient, it is considered that shock therapy is not contra-indicated and the patient is then given 5 cc. of a 10 per cent solution of metrazol intravenously. If this does not produce a convulsion within ten minutes, 5 cc. more are given. An attempt is made to give the patient three convulsions a week on alternate days. The dose of the drug is increased one-fourth cc. after each injection and whenever no convulsion is obtained, the dose is repeated immediately. If the second dose fails to produce a convulsion, the patient is immediately given three grains of sodium amytal and put in hot packs. In individuals in which there is great apprehension, a dread of the metrazol injection, insulin therapy is combined with the metrazol shock. The patient is given thirty units of insulin in the morning at seven o'clock. Each day the dose is increased until shock is obtained and while the patient is in shock, the metrazol is given. Combining the two types of treatment accomplishes two things: first, it eliminates the fear of the treatment; secondly, it apparently results in a more rapid and lasting type of improvement. As the treatments are continued, the patient, as a rule, begins to quiet down, to sleep well, to eat well and to put on weight. After four or five treatments a rest period is instituted, the patient is allowed to come out from the effect of the drug and an estimation is made of the degree of improvement in his condition. If, after two days' rest, he continues to improve, two more days are allowed. If then the change for the better still continues, no more convulsions are given, but the patient is kept in the hospital for a week's observation. If at the end of that time there is still improvement and it is considered adequate in degree the patient is allowed to go home.

The results obtained by the use of this method in the treatment of twenty-one cases with affective disorders are here reported. The data is summarized on Table 1.

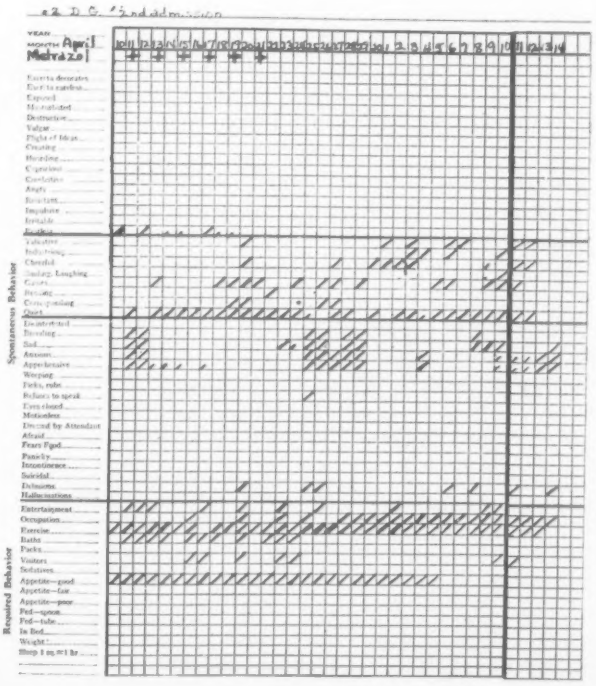
TABLE I
RESULTS OF SHOCK THERAPY IN
19 CASES OF DEPRESSION AND 2 OF MANIA

Case	Age	Sex	Degree of elation or depression	Duration	Shocks	Improvement on discharge	Interval	Present status
1	35	F	D ↓ ↓ ↓ ↓	21 mo.	20	↓ ↓ ↓	10 mo.	Well
2	60	F	D ↓ ↓ ↓ ↓	60 mo.	26	↓ ↓ ↓	1 mo.	Still improving
3	31	F	M ↓ ↓ ↓ ↓	2 mo.	6	↓ ↓ ↓	5½mo.	Well
4	38	F	D ↓ ↓	24 mo.	4	↓ ↓	3 mo.	Suicide
5	45	M	D ↓ ↓	5½mo.	10	↓ ↓ ↓	2 mo.	Improved
6	55	M	D ↓ ↓ ↓	24 mo.	12	↓ ↓ ↓	2½mo.	Well
7	42	F	D ↓ ↓ ↓ ↓	36 mo.	4	↓ ↓ ↓ ↓	1½mo.	Still improving
8	44	F	D ↓ ↓ ↓	17 mo.	8	↑ ↑ ↑	½mo.	Improved
9	49	F	D ↓ ↓ ↓	¾ mo.	27	↓ ↓ ↓	4½mo.	Still improving
10	52	F	D ↓ ↓ ↓	1½mo.	7	↓ ↓ ↑	1½mo.	Still improving
11	54	F	D ↓ ↓ ↓ ↓	12 mo.	5	↓ ↓ ↓	5 mo.	Relapsed
12	50	F	D ↓ ↓	48 mo.	9	↓ ↓ ↓	2 mo.	Relapsed
13	28	F	D ↓ ↓ ↓	1 mo.	7	↓ ↑ ↑	¾ mo.	Well
14	44	F	D ↓ ↓	9 mo.	3	↓ ↓	2 mo.	Improved
15	57	F	D ↓ ↓ ↓ ↓	10 mo.	1	0	2 mo.	Unimproved
16	62	M	D ↓ ↓ ↓	10 mo.	3	↓ ↓	5 mo.	Relapsed
17	45	F	D ↓ ↓ ↑	4 mo.	2	↓ ↓ ↓ ↓	4½mo.	Relapsed
18	20	M	D ↓ ↓ ↓ ↓	9 mo.	5	↓ ↓ ↓	5½mo.	Improved
19	50	K	D ↓ ↓ ↓ ↓	24 mo.	10	↓ ↓ ↓		Still improving
20	41	M	D ↓ ↓ ↓ ↓	2 mo.	7	↓ ↓ ↓ ↓		Still improving
21	15	M	M ↓ ↓	5 mo.	5	↓ ↓ ↓	3 mo.	Relapsed

Slight ↓ ↓ Moderate ↓ ↓ ↓ Marked ↓ ↓ ↓ ↓


Insulin X
Metrazol +
Spontaneous Behavior
Required Behavior

Case 2.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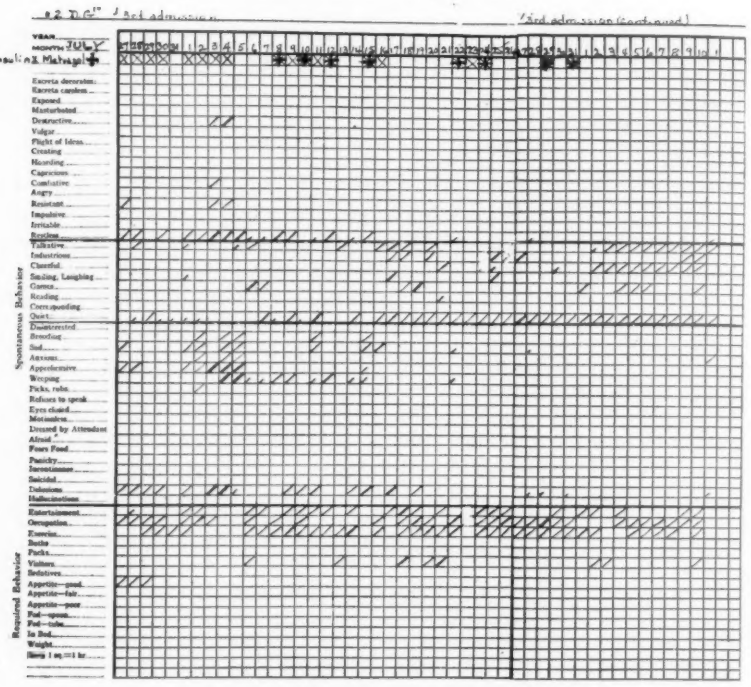
Spontaneous Behavior
Required Behavior

Case 2.



Case 2.

Treatment was started on this series of cases in September, 1937. With the exception of three, the patients were over thirty years of age. These three were twenty-eight, twenty, and sixteen, respectively. The oldest patient was sixty-two years of age, but the average age was approximately forty-five. In the group there were seven males and fourteen females. The disorders affecting all twenty-one cases were considered to be of the manic depressive type, although two had been classified as severe anxiety states with depression. These two, however, gave histories of mood swings and certainly should be considered types of affective disorder. Two of the cases were in the manic stage and the remainder in the depressed phase. The durations of the patients' illnesses prior to their entrance into the hospital varied from two weeks to five years. Nine of the group had had previous attacks of similar nature. The number of convulsions given varied from one to twenty-seven. Case 2 had three series of treatments and two relapses; Case 9 had two series of treatments and one relapse. Both showed final improvement. Nineteen of the group were improved at the time of discharge and fourteen still remained improved at least one month later. Four have had relapses and one has committed suicide. It is only fair to state, however, regarding the five cases in which there was failure that none of them was adequately treated and, for one reason or another, each left the hospital before it was planned for him to be discharged.

It is very difficult to picture the degrees of depression and agitation present in a person suffering from a mixed form of depression in which there is increased psychomotor activity and lowering of the feeling tone. An attempt has been made, however, by a series of behavior charts, to give a satisfactory general picture of the condition of these patients before treatment, during treatment, and after they had recovered. These behavior charts are similar to those formulated at Phipp's Clinic in Baltimore. In the center are collected the types of behavior seen in the normal, while above are listed those acts usually found in hyperactive individuals, and below are those found in persons suffering from depressions or retardations. On these charts, each day is represented by a column of squares and, as the days go on, a graph is made indicating the patient's behavior for that day. The days for metrazol injections are marked with plusses and those for insulin shock with crosses so that the relationship between the shock therapy and changes in agitation and depression is clearly depicted.

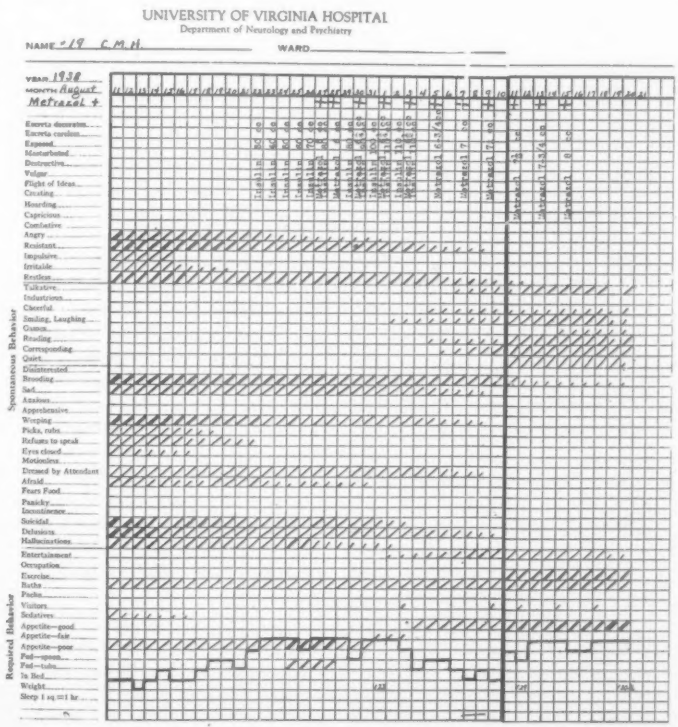
The first three charts are those of Case 2, who suffered from two relapses and had three series of injections. The fourth is the chart of Case 3 which, as can be easily seen from the behavior chart, is a case of mania responding rapidly to treatment. The fifth is the behavior chart of Case 5, illustrating a mixed form of depression which responded rapidly. The sixth is the similar chart of Case 19. The last is that of Case 20, and again illustrates the rapidity with which some cases respond to the therapy.

In discussing the results obtained in this series of cases, it must, of course, be kept in mind that this type of disease tends to run a self-limited course. There has been no control group, so it cannot be said positively that the results obtained here would not have been obtained without recourse to shock therapy. However, some of these cases had been sick for a very long time with very little sign of improvement until shock therapy was instituted and improvement under treatment was so immediate and rapid that we are almost forced to admit that something happened to expedite their recovery.

While several of these cases have not been out of the hospital long enough to draw conclusions regarding their subsequent course, yet it has been found true that, if these persons do not tend to relapse ten days or two weeks after metrazol has been stopped, they are not very likely to cease to improve.

Patients who suffer from manic depressive psychoses probably suffer more than the victims of any other disease and if there is anything that can be done to shorten their misery it would seem to be worthwhile. Certainly this series of cases demonstrates that in certain cases, at least, great relief can be obtained by using this form of therapy. Also this series demonstrates that metrazol therapy can be used without great danger in people above forty years of age.

In conclusion, then, the results obtained by the use of shock therapy in a series of twenty-one cases have been reported. There was immediate improvement in all; improvement on discharge in eighteen. A follow-up report made in September shows that fourteen are well or still greatly improved, five have had subsequent relapses, one that was not improved at discharge is still unimproved, and one, sent home slightly improved, committed suicide three months later.



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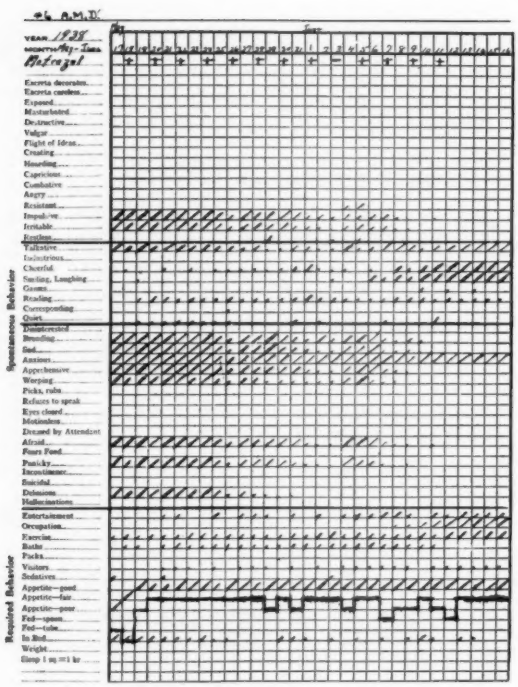

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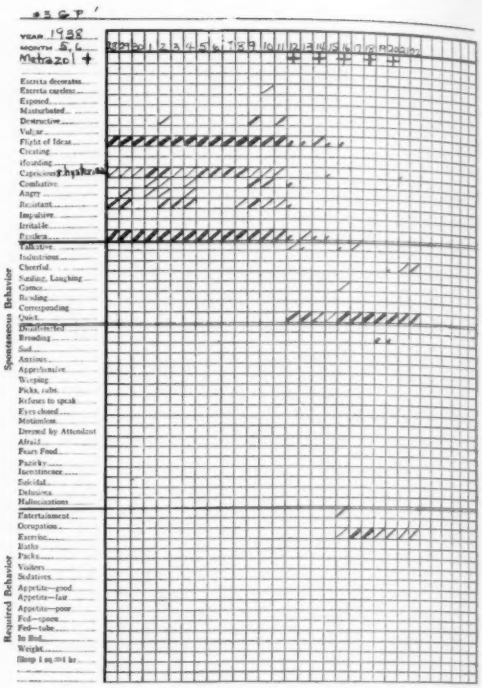

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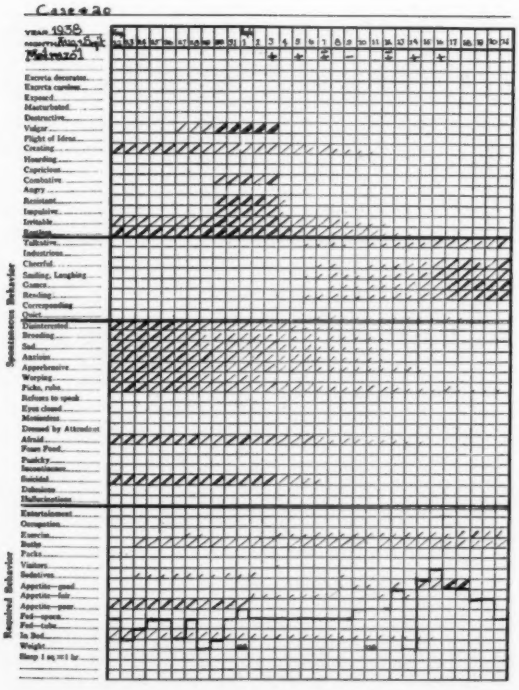

Case 19.

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DISCUSSION

DR. G. B. BARROW, Western State Hospital, Staunton: In the early days of shock treatment attention was directed to its effect on praecox and little notice was taken of the other psychoses. The doctor was somewhat in the position of Columbus when he first came to America; he did not know where he was going; he did not know where he was when he got there; he did not know where he had been when he got back. He did know, however, that he had discovered something that was worthwhile.

This mass of data is of value in that it gives the opportunity to observe the results and to compare the effects

in the different phases of the psychoses and, whenever good results were obtained, then to follow-up the lead. This is what Dr. Wilson has been doing. I believe he is bringing out some ideas that are of considerable scientific and clinical value. He is rather modest when he calls attention to the fact that most of these cases eventually recover. We know, however, that they often run this agitated depression with these fixed delusions for years and when shock is given and improvement follows immediately where there had been no evidence of improvement, we must admit that shock does the trick.

At Western State Hospital we have been giving insulin and metrazol shock to our praecox. We, like other workers in this field, have had best results in early catatonic cases.

Since talking to Dr. Wilson about his work, I have given metrazol shock to two cases of agitated depression, both of long standing, showing no symptoms of improvement. Both made immediate recovery.

We do not know what the shock does to the cortical mechanism, the ganglia and nuclei, nor to the mechanism concerned with the emotional connections between the cortex and the thalamic domain, but we are justified, however, in theorizing as to the clinical results of the action of the drug and as to why a person with depression will develop a fixed delusion and become agitated. I believe that in the development of depression we first have a slowing down of mental activity to an abnormal degree. In the normal individual mental activity varies with attention. Attention varies with the importance of the conscious content. In depression we first have psychic retardation; then the conscious realization of mental inadequacy to meet the situation presented; then comes fear and apprehension. On this basis the delusions are developed and elaborated; these delusions always follow the effect. In the process of recovery when psychic activity again approaches normal bounds, these delusions are liquidated by reasoning. When some particular delusion is so deeply fixed that it cannot be liquidated by this feeble returning reason, the patient becomes agitated and continues in this state. It may be that metrazol stimulates cerebral activity to the point of enabling the patient to overcome the dominance of the delusion; or it may be that it causes him to forget the delusion; or both, to the extent that he is able to function normally sufficiently long to regain his balance.

I believe this work of Dr. Wilson's is scientifically important and is theoretically and clinically sound and will stand the test of further application and study. These cases are the most pitiful and appealing of all the psychoses and if their misery can be shortened by one day the treatment is justified.

DR. R. FINLEY GAYLE, Richmond: I find myself in entire accord with what Dr. Wilson has said, and wish to congratulate him on the excellent results he has gotten in long standing cases of doubtful prognosis. He has reported a large number of depressed individuals treated with shock therapy. I am particularly struck with the age of his subjects, only three being under thirty; the oldest was sixty-two, and the average age was forty-five years. The duration of the illness in the larger number of cases was several years, and the prompt recovery in many of them is a very startling point brought out in his paper.

Another important fact, and a statement which I would question were it made by some, is that the five cases in which he got no improvement were those who did not take adequate treatment; in all other cases the symptoms were ameliorated or improved.

It is true that individuals with affective mental disorders tend to recover spontaneously, but it is not the rule for those who have been sick with the involutional type of melancholia for a period of many years to get well within a few weeks with any previously known treatment. Certainly if Dr. Wilson's observations are correct, this type of shock therapy offers something worthwhile in the handling of these people—something that we have dreamed of, but few have had much hope of its being realized.

Insulin shock therapy, as also metrazol, is being employed in the treatment of the psychoneurotic states with varying results. Many psychiatrists are enthusiastic about its use, not only in these borderline mental states, but in the schizophrenic, and in the profound affective psychotic states. Other more conservative psychiatrists throughout the country are very skeptical of the whole procedure, and are playing a watchful, waiting game, before employing this method of treatment, except in a small series of cases. Others feel that we are not justified in the use of shock treatment, that there is no sound explanation of the reason that it should benefit a psychic disturbance. Dr. Wilson should be commended for not being extravagant in his claims.

It will be interesting to follow this work further from Dr. Wilson's service and from reports of others in various parts of the country. It happens that I am familiar with some of these cases and I am able to confirm the results in a number of them.

The drugs should be carefully and judiciously used, and they should not be used as a cure-all for mental disturbances. The number of cases is relatively small, and hasty conclusions should not be drawn until further proof is added.

DR. WILSON, closing the discussion: Case 17, of which Dr. Barrow spoke, is a good example of how one can be misled. This patient was quite agitated and upset when she entered the hospital. However, we gave her two convulsions by means of metrazol injections and she became apparently entirely well. She thought she was well, at least, and she insisted on going home. She left the hospital, in spite of everything we could do, on her way to Roanoke. Before she got there, however, she became so upset and confused she had to get off the train. The next thing I knew I heard from her family that she was in very bad shape and had to go to a hospital. She was taken to a hospital in Roanoke and from there to DeJarnette Sanatorium. There she has since had metrazol injections with convulsions and is improving again. This woman was in a very definite agitated depression and we obtained a false cure in her case. Cer-

tainly you can get such good results in many other cases from one or two injections, but they relapse later and, therefore, should not be discharged until you have had them under observation for at least a week or ten days after the last injection.

All cases, however, do not improve. There is one we mentioned which was treated for two weeks. She was a typical case of involutional melancholia. She finally insisted on going home. We considered at the time of discharge that she was entirely unimproved. Dr. Garnett, who has seen her since, claims that she is much better, but as far as our reports go she is considered as an unimproved case, in spite of four or five injections.

SOME NEWER VIEWPOINTS ON PEPTIC ULCER AS A CLINICAL PROBLEM.*

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Peptic ulcer can no longer be regarded clinically as merely a local disease of the stomach or duodenum. For the pathologist it may be only that, but the modern internist must concern himself, in addition, with the person who has the ulcer—with his heredity, with his physical, mental and emotional make-up, with the nature of his endocrine and his autonomic nervous equipment, with his environment and social status and with his personal habits of life. This means, of course, that the practitioner who treats a peptic ulcer must be more than a specialized gastroenterologist; he must be a physician in the broad sense of that term.

It must be admitted at once that our present knowledge of the relationships between ulcer and certain general characteristics of the person who has it is limited largely to an appreciation of their association, but that alone, it seems to me, is a challenge and a stimulus to further investigation. Whether or not the etiology of ulcer is proved eventually to depend on conditions outside the stomach or duodenum itself, such an established clinical association is of diagnostic importance and it seems to have a bearing on treatment. In discussing the subject of peptic ulcer with you, therefore, I must ask your indulgence if I place what you may consider undue emphasis on extra-gastrointestinal conditions.

Some of you may wonder that I should begin with remarks on the physical characteristics of the patient with ulcer, and yet Draper in this connection has stated that, for him who has learned to read it, the face of Man is an open book; and he feels that the diagnosis of some visceral diseases, based on facial and other bodily measurements, is as accurate as that based on all other available clinical tests. Be that is it may, he describes, as typical of the peptic ulcer subject, a facial conformation that is intermediate between the narrow one with close-set eyes of tuberculosis and the wide square one with a wide eye zone of primary anemia; also intermediate between the narrow face with widely spaced eyes of hypertensive nephritis and the rounder face with a narrower eye zone of gall bladder disease. He also has observed that the ulcer patient, as compared with the gall bladder patient, has a more acute costal angle, a more obtuse gonial angle, a narrower palate arch, longer teeth, less weight in relation to height and a more shallow chest. The older clinicians, without appreciating how they were doing it, recognized the type and were said to have diagnostic intuition. Shakespeare even, as has been pointed out, had the duodenal ulcer type in mind when he said: "Yond Cassius has a lean and hungry look; he thinks too much: such men are dangerous." We are all aware of the occurrence of ulcer in various members and in several generations of a family; and this hereditary factor may depend on the transmission of certain gross physical characteristics.

Equally important as a characteristic of the subject of ulcer is his psychic panel of personality. He usually is of a nervous temperament, worries unduly and is introspective. He is not nervous in the sense of being flighty and unstable; but fearful, highly sensitive, intense and strenuous. In the field of psychiatry he is schizophrenic. Draper says that he has little endurance, but is quickly rehabilitated by food, short periods of rest and relief from anxiety.

Cushing has called attention to the occurrence of peptic ulcer in subjects with organic lesions of the interbrain, presumably initiated through some imbalance of the sympathetic and parasympathetic ner-

From the Gastro-Intestinal Section of the Medical Clinic, University of Pennsylvania Hospital.
*Read before the Medical Society of Northern Virginia at Winchester, Va., November 15, 1938.

vous systems. Comroe, of our clinic, has reported two cases associated with pituitary lesions. Peptic ulcer and its complications are rare during pregnancy; Sandweiss, Saltzstein and Farbman have investigated this experimentally and believe it is due to the large amount of antuitrin-S present in the body at that time; they also suggest that its relative infrequency in women may be due to the same factor. There is also some experimental work tending to show a relationship of peptic ulcer to adrenal dysfunction.

Peptic ulcer, furthermore, frequently develops in predisposed people when they are subjected to unusual emotional strain, to continued worry and anxiety. During the acute depression of 1929 I saw ulcer develop in a number of bankers, and I have seen it appear after a domestic upheaval or a great financial collapse. Sullivan has emphasized this psychogenic factor in ulcerative colitis. In the stomach it may operate by producing, first of all, pylorospasm, mediated perhaps through adrenal stimulation.

The use of tobacco or alcohol is believed by many to be of etiological significance, and doubtless either may be the precipitating factor in a person predisposed constitutionally to ulcer. Other personal habits which involve over-work, loss of sleep and nervous exhaustion probably act in the same fashion and deserve special attention in prevention and treatment.

Sex and age traditionally are of importance, but ulcer may occur at any age. Its predominance clinically in males (at least six to one) tends to suggest that focal infection is not such an important factor as we once thought. The age distribution seems to vary from time to time. Once it was considered most frequent in early adult life, but some years ago we found its acme of incidence in middle life; more recently our cases are younger. For this variation with time I have no explanation.

An excess of free hydrochloric acid in the stomach contents is commonly regarded as of etiological and diagnostic value, and certainly its association is very frequent, at least in duodenal ulcer. It is present in many normal persons, however, and presumably characterizes a certain constitutional type. Hurst believes that when a person with constitutional hyperacidity abuses his stomach in any way ulcer results, whereas when a person with a low acidity is subjected to the same influences he gets a gastritis, often eventually cancer. At any rate there is much experimental work, such as that of Dragstedt and Mathews and of Mann, to indicate that hyperacidity is a causative factor in the development of ulcer. Though it may not initiate the ulcer, the gastric acidity seems to have much to do with its progress and chronicity. Ulcer rarely is recognized in its absence. Furthermore, neutralization of the free hydrochloric acid is most important in cure, that clinical fact in itself indicating an etiological relationship.

I have discussed these various clinical aspects of ulcer chiefly from the viewpoint of etiology. They are also of diagnostic value, though the crucial considerations from that angle are, of course, the history and the roentgenological observations. On the history alone the physician can usually, but not always, make the diagnosis. The type of the discomfort, its characteristic relationship to the ingestion of food and the periodicity of its occurrence are the important points. These features are of particular significance when they develop in a person of the constitutional type described.

Today, however, one should not subject any patient to ulcer therapy without roentgenological confirmation of the diagnosis. At least a fluoroscopic examination is indicated, and if typical signs are not discovered, films should be secured. The X-ray has in our experience given a correct diagnosis in fully 95 per cent of the cases. Without its confirmation of the clinical diagnosis I do not believe that we are justified in putting patients on the long tedious regimen that is necessary for successful management. Furthermore, if the X-ray shows no ulcer, I believe the diagnosis should be seriously questioned and other possibilities investigated.

TREATMENT

The old controversy as to the medical or surgical treatment of peptic ulcer has largely subsided with the recognition by both internists and surgeons that when uncomplicated it is a medical problem, whereas, when complicated, it usually deserves surgical therapy. The only important exception to this statement involves the management of the grossly bleeding ulcer. I shall, therefore, after outlining briefly the generally accepted viewpoint regarding the medical aspects of therapy, devote special attention to the management of those cases that have massive hemorrhage as a complication.

To clarify a consideration of the therapy in its larger aspects, however, it is necessary first of all to refer to the other complications which, as stated, are

primarily the indications for surgical interference. These are perforation, obstruction, and malignant degeneration.

Although there are recognized some instances of perforation, the so-called "formes frustes" cases, that are promptly sealed off, do not give rise to general peritonitis or even localized perigastric abscess formation and that heal spontaneously, still perforation, when recognized, must be regarded as a clear indication for immediate operation. We are all familiar with the high mortality rate in those frank cases not subjected to surgery within the first twenty-four hours.

As to true pyloric stenosis, secondary to ulcer, usually duodenal rather than gastric, the indication for surgery is equally definite, though by no means so urgent. The problem in this instance is to determine whether the obstruction is merely transient or of a permanent nature. Often, incident to an active gastric ulcer and sometimes to an active duodenal lesion, pylorospasm or an edematous condition of the pylorus develops and gives rise to gastric retention with vomiting. Ravdin especially has called attention to an edematous condition of the gastric mucosa that is dependent on a low plasma protein content of the blood and that results from a low protein intake. Such cases ordinarily can be controlled medically and should never be operated on the basis of the stenosis alone. This constitutes a reason for delay of operation in all the obstructed cases. Only when they do not respond to a rational medcial regimen, thus indicating that the obstruction is permanent, is surgical interference justified; under those circumstances, however, it is clearly indicated and the results from gastro-enterostomy are better than in any other type of case.

Likewise, in dealing with gastric ulcer that is possibly malignant, it is important to make every effort to discover first of all whether or not the lesion is actually of that nature. That, however, is not easily settled and to wait for its determination may rob the patient of a chance for ultimate cure. It is the practice in some clinics to operate promptly on all patients having an ulcerative lesion near the pylorus or along the greater curvature of the stomach; in other clinics, after three weeks on a strict medical program, to repeat the roentgenological study and then to operate on those that have not showed a decrease in the gastric wall defect. We have found the latter method, originally suggested by Sara Jordon, of the Lahey Clinic, very helpful and by means of it have saved some patients from operation. It is certainly justifiable when the lesion involves the mid-portion of the lesser curvature, where lesions are so commonly benign. At the same time we must remember that the defect may fill with cancer cells or even mucus and food material and so give rise to an erroneous opinion as to healing. The presence of free hydrochloric acid in the stomach is not of value in this connection, since it is so common, even in adequate amounts, in pyloric cancer. If the history is short, the oozing of blood does not readily cease on a medical program and the X-ray does not show decided improvement, we are inclined, in spite of the age of the patient, to advise surgery.

Finally, one must refer to another group of peptic ulcer cases that in the end require surgery. The indication is not strictly speaking, a complication but merely unexplainable refractoriness to a medical regimen. These cases are usually in patients who have a marked constitutional tendency to ulcer, have hypersecretion and hyperacidity, and who, in spite of all reasonable medical procedures, fail to secure healing, have frequent recurrences of activity in the same lesion or readily form new ulcers. Even after a gastro-enterostomy they frequently develop a stomach or jejunal ulcer. Such patients, for cure, require a partial gastric resection.

Our chief interest at the moment, however, is in the medical management of the patient with a peptic ulcer. This must take into consideration all the etiological factors which we have referred to. On the basis of some of them, such as heredity and the physical conformation of the body, nothing can be done. With others, however, such as environment, personal habits, psychological factors and altered gastric secretion, much can sometimes be accomplished.

The situation is much the same as it is in pulmonary tuberculosis. Local measures directed toward the lesion itself are of great importance, and must not be neglected, but, first of all, the patient must be made to realize that he has a chronic illness, or at least a tendency to recurrence once the lesion has healed, and that he must reorganize his whole life in such a way as permanently to eliminate the factors that are prejudicial to his health. He may he able to continue his life work, and in the case of ulcer to be ambulant at all times, but he should develop a philosophical attitude, conquer his natural

tendency to fret and worry about things, avoid excessive responsibilities and undue physical and nervous strain of all kinds. He must especialy appreciate the necessity of certain changes in his habits of eating, give up tobacco and alcohol, if addicted to their use, and establish a fixed and more leisurely routine of life.

I admit that some patients, after a time, seem to be perfectly normal and many are able to return to their old habits without an ulcer recurrence, but so do some patients after an active tuberculosis. The tendency to a recurrence in both diseases, however, exists and the persons who most often have the recurrences are those who disregard the precautions that are prescribed.

Various special forms of treatment, such as particular dietary programs, the use of alkalies, of mucin, of histidin, have been advocated and all give reasonably good results, no one strikingly better than another. All, however, include some change in the patient's habits of living and some freedom from concern about himself, the latter sometimes involved, unconsciously perhaps, in his feeling of confidence in and dependence on his physician; and those things alone often are sufficient to bring about ulcer cure, no matter how irrational some of the special forms of treatment may be. This is an aspect of therapy that I believe to be of tremendous importance and one that has been overlooked by most writers on the subject.

To be entirely adequate, however, and to give the patient the best possible chance of ultimate and complete cure it is logical to include in the treatment all the techniques that have a rational basis. This should involve not only general measures designed to bring about psychological readjustments and relief from physical and nervous strain, but, in addition, the special procedures which have been proved to be of immediate and direct value locally.

The chief measures of proved local value are those which tend to prevent irritation of the ulcer-bearing area. The irritants may be of a mechanical or chemical nature. Coarse foods, which produce no injury of the normal gastric mucosa, such as nuts, the seeds of berries and fruits, fruit skins and the cellulose content of certain vegetables, may mechanically irritate the base of an ulcer, scrape off newly forming epithelial layers and lead to hemorrhage or perforation. Likewise, highly acid foods, such as many of the raw fruits and salad dressings, alcohol and the condiments, including salt, may chemically irritate the ulcer bed. Curiously, however, the most irritating substance is a normal product of the gastric mucosa itself, hydrochloric acid. Not only clinical observation but also such experimental work as that of Dragstedt and of Mann seem to show beyond all question that ulcers are produced, or at least made chronic, by the eroding action of hydrochloric acid and that ulcers tend to heal when the acid factor is eliminated.

To avoid the mechanical and chemical irritation of certain foods it is only necessary to eliminate them from the diet. To control the acid factor in the stomach secretion, however, is a more difficult matter. The secretion of the acid cannot be prevented, but fortunately, sometimes by food alone, it can be neutralized. Protein foods especially are helpful in this respect, but they at the same time stimulate a greater flow of acid. Milk and the carbohydrates are commonly depended upon for this action and, if frequently enough administered, they alone may keep the acid entirely neutralized. Fats are helpful in that thy prevent a too rapid emptying of the stomach. Meat extracts, such as consomme, because of their histamine content, perhaps should not be given; but in spite of this stimulating effect, meats themselves, when well cooked and well chewed, have never in my experience produced harmful effects.

The frequency of the feedings is important and usually at least six a day are indicated. I have often found it helpful to introduce a gastric tube from time to time, before feedings, to determine whether the acid is controlled. When not under control the frequency of the feedings should be increased, sometimes to hourly intervals, as Sippy advised.

At times the diet alone, no matter how frequently administered, does not control the acid and then small doses of an alkaline mixture may be given for short periods of time, but frequently I have not found that necessary. They should be avoided when possible because of the danger of mild sub-clinical alkalosis. I have often found that a patient's appetite and his general sense of well-being improved as soon as the alkalies were stopped and no other change in the therapy made. In order to avoid the possibility of an alkalosis some clinicians are now using aluminum hydroxide or magnesium trisilicate for neutralization of the gastric acidity. I have found both of these substances quite satisfactory.

Other drugs, except sedatives, are of questionable

value in my opinion. Belladonna in adequate doses reduces the acid secretion and perhaps tends to relax spasm, but its side effects are undesirable. Occasionally in obstinate cases silver nitrate seems to give relief, but must not be kept up for long periods, because of argyria. The sedatives are most helpful, bromides, chloral and the barbiturates, and should be used, to relax nervous tension, in most ulcer patients.

On such a program of therapy at least 60 to 80 per cent of uncomplicated cases recover. Recurrences are rare when the general measures outlined are adhered to. Reasonable care about the diet must be continuously exercised, but ordinarily after a few months the intermediate feedings can be dispensed with and a general well-balanced diet resumed.

TREATMENT OF MASSIVE HEMORRHAGE

The treatment of the grossly bleeding peptic ulcer deserves separate attention because as yet there is no unanimity of opinion as to how it should be managed. Some medical men still report a mortality of 15 to 25 per cent, and some surgeons a much higher figure. In a recent analysis of the records of sixty-eight cases in our hospital, Elsom and I found that the five cases operated in the midst of their hemorrhage died; that of fourteen operated after cessation of the hemorrhage one died, and that of the forty-nine cases treated medically only three died, a mortality of 6.1 per cent. We found, furthermore, that of 383 cases reported in the literature as having been operated for gross hemorrhage 28 per cent died, whereas the mortality was only 8.7 per cent for 5,843 cases treated medically.

At first thought one might say, on the basis of these data, that all the cases should be treated medically. Further analysis, however, is necessary and reveals that many of the cases, like our own five cases, were subjected to surgery only after it became obvious that they would not recover on a medical regimen. Thus such transfer to the surgeons of seriously ill patients raised the operative mortality and at the same time lowered that of the medically treated cases.

It is impossible to secure comparable groups treated medically and treated surgically, but some surgeons make a practice of operating on all cases and doing it early in the hemorrhage. Finsterer, for instance, by operating early in a group of fifty-one cases had a mortality of only 5.9 per cent. Ross, however, who also favors early operation, in a series of forty-three had a mortality of 60 per cent. On the whole the best surgical results were obtained when the operation was done after hemorrhage had ceased. It seems probable, however, that some cases that die on a medical program or after late operation could be saved by early operation. The difficulty lies in picking out the cases that will die without operation.

Let us, however, now consider the medical procedures available and their results.

The usual medical regimen includes complete rest and starvation during and for a few days after the period of bleeding and the free use of morphine during that time, followed by a simple diet such as that of Sippy or of Andresen. On this basis our cases, as well as most of those reported in the literature, were treated. The mortality has varied greatly, from 3.3 to 25 per cent, with most authors reporting from 5 to 15 per cent.

In contrast to this form of medical therapy Andresen proposed some years ago that the patients be fed immediately following a hemorrhage and he outlined a program including the routine use of a gelatin mixture. More recently Meuhlengracht, Copenhagen, has advocated feeding in the midst of the hemorrhage and has allowed a quite liberal diet including ground meats, pureed vegetables, bread and butter and tea. At the same time he has given alkalies, hyoscyamus and iron. He based his program on the observations, previously made by Andresen, that some ambulant cases recover without any dietary regulation, that some cases stop bleeding when fed and that some patients seem to die merely of exhaustion. He also believed that healing would be promoted by good nutrition and by controlling the acidity of the stomach contents.

Meuhlengracht's plan of management has attracted a great deal of attention because of his published results, only five deaths in 368 cases. Witts and Boyd, furthermore, applying his method, have had no deaths respectively in twenty and in fifteen cases. Gram had only four deaths in 106 cases. No other authors have reported a negative mortality except Lineberry and Issos (twenty cases) and they also fed their patients, though on a Sippy diet, in the midst of the hemorrhage.

Such results as these, reported by competent clinicians, force one to reconsider the entire matter of ulcer

therapy. If it is true that in the midst of one of its most serious complications, further ulceration ceases, open blood vessels close and healing takes place under the influence of little more than bodily rest and adequate feeding, one wonders if the measures directed toward the maintenance of normal bodily functions and good nutrition are not the most important therapeutic procedures for the uncomplicated case. That brings us again to the thought that it is the patient as a whole and not merely his ulcer that requires primary consideration.

Thus I have outlined some of the current ideas regarding the etiology, diagnosis and treatment of peptic ulcer and have attempted to point out in connection with each phase of the subject that the physician must consider not only the ulcer itself but also the person who has it.

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THE PRACTICAL VALUE OF GASTROSCOPY TO THE INTERNIST.*

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and
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The history of practical safe gastroscopy began in 1932 with the introduction of the flexible gastroscope by Schindler and Wolf. The first attempt at gastroscopy was by Kussmaul in 1868 on a sword swallower. This was a failure because he was unable to get proper illumination through such a long instrument. The next attempt was by Mickulicz in 1881. For technical reasons he also abandoned its use. In 1922 Schindler described the use of the closed rigid tube. This was the beginning of clinical gastroscopy.[1]

The flexible gastroscope, as we shall show in this paper, has become a practical and reasonably safe instrument for studying the stomach in the same way that the cystoscope, the sigmoidoscope and the bronchoscope have been of value in studying their respective organs.

Gastroscopy is an office precedure and can be carried out there just as well as at the hospital provided one has two good assistants. The technique of Schindler, as described in his book on "Gastroscopy", is rigidly adhered to by us. Since March, 1938, we have done all of our gastroscopies in the office and we are satisfied that they were as well done as if they had been done in the hospital. Although we regard it as an office procedure, we are always cognizant of the potential danger of using force in the instrument's introduction and of the necessity for the proper study of the patient before the examination is performed.

We fully realize that gastroscopy is not the first examination to be done on the patient. The preliminary study should include the history, physical examination, blood count, Wassermann, urinalysis, gastric analysis, stool examination, fluoroscopy of the chest, and gastro-intestinal X-ray series. The reason for this thorough survey is to eliminate such contra-indications to gastroscopy as mechanical obstruction of the esophagus or cardia, esophageal diverticulum and cardiovascular disease, especially aneurysm.[2]

The problems encountered by the internist requiring gastroscopy fall into two groups: First, are those problems in which the diagnosis is doubtful or cannot be made, and, second, those in which the diagnosis has been made and gastroscopy becomes desirable either as a confirmatory examination or as a follow-up procedure.

PROBLEMS IN WHICH THE DIAGNOSIS IS DOUBTFUL

1. The first important group includes those patients who have symptoms of a gastric or duodenal ulcer in whom the X-ray findings are negative. Before we class these people as psychoneurotic or as having small hidden ulcers, a gastroscopic examination should be done. On examination, a small ulcer, erosion, mucosal hemorrhage or one of the types of gastritis may be found.[1]

2. The second important group includes those patients over thirty-five years of age who suffer from anorexia or significant loss of weight in whom there is no other explanation for the symptoms present. Attention was first called to this group by Schindler.[3]

*Read before the sixty-ninth annual meeting of the Medical Society of Virginia, at Danville, October 4-6, 1938.

The diagnosis of early gastric carcinoma is one of the most pressing problems today.[1] The last World Congress on Gastroenterology in Paris considered this a major issue confronting the medical profession and discussed X-ray and gastroscopy as being the best methods of precision in diagnosing these cases early. Too many people over thirty-five years of age complaining of loss of weight and loss of appetite are given bitter tonics and are not seen again until the family becomes alarmed or the patient has obstructive symptoms. Gastric surgery in the selected early case may offer a great deal to the patient.[3]

3. The third group is probably numerically the largest group of patients who consult the internist. These are the ones we call neurotic. Vague terms such as "dyspepsia", "nervous indigestion", "bowel distress", "nervousness", and "fatigue" are used by the patient and the doctor. In so many of these people we have placed the blame on "nerves", emotional imbalance, hyperacidity or hypocidity, when the real trouble was in the gastric mucosa.[1]

The symptomatology connected with gastritis is still on an unsettled basis and there is still confusion in classifying the different types of gastritis, but the classification of Schindler into superficial, atrophic and hypertrophic is the one generally accepted.[1]

The superficial is characterized by red hyperemic areas, with swollen folds and overlying mucus; the hypertrophic by a velvet-like swollen, nodular mucous membrane with large creases; and the atrophic by a thinned grayish-green membrane in the latter stages of which the blood vessels may be seen.[4]

The patient with nervous indigestion may have any one of the above types of gastritis or even a beginning carcinoma. Gastroscopy offers this group for the most part the only specific diagnosis. Roentgen mucosal relief studies are of some value in hypertrophic gastritis, but for superficial and atrophic gastritis they have been shown by Henning to be useless.[5]

While discussing this group of so-called neurotic individuals we should like to point out the value to the peace of mind of the doctor and patient alike of discovering a normal gastric mucosa. Negative findings are just as valuable in medicine as positive ones. J. B. Carey, in a recent article on gastritis, referred to the cases with functional complaints sent to him for gastroscopic examination by the clinician who desired a definite opinion upon which to base his discussion of negative findings with the patient.[6] The following is an illustrative case:

Case 1.—A. S., a white man, aged thirty-two, American, complained of pressure in epigastrium and belching of three years' duration. The pressure was worse on an empty stomach and was relieved by alkalies. There was no alcoholic history. On physical examination there was tenderness about two inches above the umbilicus. Urine, blood count, and Wassermann were negative. The gall bladder series and gastro-intestinal series were negative. The fractional gastric analysis showed no free hydrochloric acid present. The gastroscopic examination on July 10, 1938, showed areas of atrophic gastritis on the posterior wall and greater curvature of the pars media.

Comment: Undoubtedly gastroscopy was in this case the only method of arriving at the diagnosis. Without this examination the condition could have been called nervous indigestion.

4. Gastroscopy is of great aid in those cases of hematemesis or melena in which no cause of the bleeding can be ascertained by a thorough examination including X-ray. It is preferably done after the active phases of bleeding have subsided.[1] Benedict has recently reported twenty cases of gastro-intestinal hemorrhage studied by gastroscopy in which the only demonstrable source of hemorrhage was a superficial or hypertrophic gastritis. Usually one or more gastric erosions were found in these cases. Most of them were users of alcohol.[7]

PROBLEMS IN WHICH THE DIAGNOSIS HAS BEEN MADE AND GASTROSCOPY BECOMES DESIRABLE AS EITHER A CONFIRMATORY EXAMINATION OR A FOLLOW-UP PROCEDURE

First, in pernicious anemia and other macrocytic anemias it is of definite value in ascertaining the degree of atrophic gastritis and the improvement incident to treatment. It is well known that carcinoma is occasionally associated with a macrocytic anemia, so, in this sense, gastroscopy is necessary to confirm the diagnosis. R. M. Washburn and H. M. Rosendaal recently reviewed 906 consecutive cases of pernicious anemia and reported that gastric tumors numbered twenty-four cases. In sixteen cases gastric carcinoma was found, an incidence of 1.76 per cent.[8]

The following is an illustrative case of pernicious anemia:

Case 2.—V.J.N., a pattern maker, aged fifty-one years, consulted us July 23, 1938, complaining of

weakness of five months' duration. He was underweight, of a pale lemon yellow color and, on this date, the blood count showed hemoglobin 27 per cent, erythrocytes 1,190,000, color index 1.2, volume index 1.6, leukocytes 5,950, macrocytes, anisocytosis, poikylocytosis, polychromatophilia, basophilic stippling, and 2,700 reticulocytes. There was an achlorhydria. On August 13, after intensive liver therapy, the hemoglobin had risen to 73 per cent and the erythrocytes to 3,540,000. On August 16 a gastroscopic examination was done and there was a great deal of thinning out of the mucous membrane. There were some areas in which the blood vessels could be seen.

Diagnosis: Atrophic gastritis.

Comment: The value of gastroscopy in this case was to ascertain the degree of gastritis and to be sure there was no beginning malignancy. The case can be followed by future examinations to determine the degree of improvement.

Second, many cases of hypochromic anemia were gastroscoped by Moutier and Chevalier, and in many of these cases atrophic gastritis was found and successful results were obtained by the use of iron.[9]

The diagnosis of gastric ulcer is usually very easily made by X-ray examinations and, from the diagnostic standpoint, gastroscopy would be a superfluous examination. Aside from the value of confirming the diagnosis it is of value in following the healing of the ulcer and in determining whether it is benign or malignant. Although the ulcer may appear to be completely healed according to X-ray, on gastroscopy it may be found to be still open.[1] In this way the treatment can be continued until complete healing can be demonstrated by direct vision.

In those cases of gastric ulcer which may be surgical a preliminary gastroscopy will determine the amount and extent of gastritis associated with the ulcer and give the surgeon a choice of operation.[10–11]

In carcinoma of the stomach gastroscopy is a useful supplement to radiology. Advantages for gastroscopy in differentiating between benign and malignant ulcers have been claimed by Schindler.[1] He has pointed out that the benign ulcer has a yellowish white floor and a sharp discrete edge, whereas the carcinomatous ulcer has a dark brown or violet floor with an irregular edge and an infiltrated rigid surrounding mucous membrane. The other types include the solitary polypoid carcinoma which appears lobulated and projects over the general level of the mucosa and has a sharply limited edge, and the scirrhous growth which diffusely infiltrates the stomach either partially or completely. Both Henning and Schindler report that the gastroscopic examination in these cases reduces exploratory laparotomy to a minimum.[1–4] The operability of the lesion can be determined by gastroscopy.

The next condition in which gastroscopy is valuable as a follow-up is in the post-operative stomach.[1] Chronic gastritis of all types and degrees is the most frequent pathology found. Marginal, recurrent, and jejunal ulcers are sometimes seen. Schindler has called attention to the relative lack of gastritis in those cases in which the stoma showed a rhythmical adaptation. The following is an illustrative case:

Case 3.—O.P.J., white, male, aged thirty-two, American, with a history of duodenal ulcer with pyloric stenosis and obstruction, on whom a partial gastrectomy and anterior Polya with anastomosis of the proximal and distal loops was done on December 29, 1937.

On June 20, 1938, gastroscopy showed a normally functioning stoma, a very mild superficial gastritis and a silk suture hanging from the edge of the stoma.

Comment: Although this patient has no complaints at the present time it may be necessary in the future to remove the suture.

The unusual case of syphilis, lymphogranulomatosis and tuberculosis of the stomach should be mentioned as indications for gastroscopy.

SUMMARY

Gastroscopy is of value to the internist, first, as an aid to diagnosis in those cases in which the diagnosis is doubtful, and, second, as a confirmatory examination or follow-up procedure in cases in which the diagnosis has been made. It is of aid in diagnosis in:

1. Ulcer-like cases in which no pathology can be found.
2. Cases over thirty-five years who have lost weight and have anorexia.
3. Psychoneurotics with digestive symptoms.
4. Cases with hematemesis and melena.

It is of value as a follow-up procedure in:

1. Pernicious anemia and other macrocytic anemia.
2. Hypochromic anemia.
3. Gastric ulcer.
4. Gastric carcinoma.

5. The post-operative stomach.
6. The specific granulomata.

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Medical Arts Building.

DISCUSSION

DR. PORTER P. VINSON, Richmond: We are indebted to Dr. Mewborne and Dr. Alexander for their conservative and interesting summary of this fascinating method of studying the interior of the stomach. There is very little to add to what they have described except to say that I believe this examination, which can be done with relatively little risk and very little discomfort, should be based upon the question of the lack of pathology in the esophagus. One should be certain that the esophagus does not harbor a lesion before introducing the gastroscope. This does not mean that the patient should be esophagoscoped before passage of the gastroscope; as a matter of fact, esophagoscopy entails more risk than gastroscopy. If, however, the patient has difficulty in swallowing or if there is any previous evidence of obstruction of the esophagus, then esophagoscopy should be performed before introduction of the gastroscope.

There is certainly no more tragic page in American medicine than carcinoma of the stomach. Before we use gastroscopy to diagnose lesions of the stomach, we should become familiar with the early symptoms of gastric carcinoma. Then patients should be sent for X-ray examination. If the X-ray examination is negative or if the lesion is undetermined, gastroscopy should be employed. There has been a tendency on the part of roentgenologists and gastroscopists to pit one of these examinations against the other. Neither should be depended upon absolutely. Of the two, I should not hesitate to say that roentgenoscopy in the hands of the average roentgenologist is to be preferred to gastroscopy by the expert.

A negative gastroscopy does not mean that there is not a lesion in the stomach. I have always been uncertain as to just how much of the interior of the stomach I could see through the gastroscope. Then, too, certain abnormal areas of the stomach differ so little in appearance from the normal that I can never be sure they are not infiltrated with carcinoma. It is likely that forceps will be devised to pass along beside the gastroscope to secure a specimen of tissue from the mucous membrane of the stomach for a microscopic examination.

We should not be led astray by finding areas of erosion of the mucosa of the stomach and attribute unrelated symptoms to gastritis. Gastroscopy as a means of examining the stomach has come to stay, and we should feel deeply grateful to Dr. Mewborne and Dr. Alexander for their efforts in furthering this interesting method of study.

DR. ALEXANDER: This work was done largely by Dr. Mewborne. While I am very much interested in the general subject of "gastroscopy" I have been particularly interested in a group of urticarial patients. I have been interested in knowing what happens in the gastro-intestinal tract, if anything, when there are urticarial lesions of the skin. A very interesting paper by Drs. Chevalier and Moutier of France, to which Dr. Mewborne has referred, points out that visceral lesions associated with urticaria are rather frequent and are manifested by the presence in the stomach of atrophic gastritis. They pointed out further that a patient may have a relatively mild urticaria and yet have rather marked atrophic gastritis, which may be termed visceral urticaria. They found, furthermore, the administration of large doses of iron in these cases of so-called visceral manifestations of urticaria improved them a great deal.

A lot more will be said about gastroscopy as time goes on because it is another method of direct vision of a mucous membrane.

We had a patient some time ago who two years ago began to show some manifestations of nasal allergy when he acquired some chickens for the poultry business. He had never had any nasal symptoms before. When he came to our office he had rather marked urticarial lesions all over his body. By sensitization studies we found him sensitive to three or four foods and of course chicken feathers, one of the foods being peanuts. Later he came to our office following a rather acute attack of urticaria after eating peanuts. A gastroscopic study was done and a rather marked gastritis was found.

One of the reasons for presenting this paper to you is that the subject of gastroscopy has been interesting and helpful to us and we trust that it will be to you.

DR. MEWBORNE, closing the discussion: I thank Dr. Vinson for discussing the paper. I thoroughly agree with him that the esophagus should be carefully investigated before gastroscopy is done.

ECONOMIC STATUS AND THE CONTROL OF CANCER.*

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University, Virginia.

Cancer is an ever-growing responsibility of the medical profession, and an increasing economic and humanitarian problem. The control of cancer is one of the most urgent of present-day medical tasks. Fortunately, through the activities of the profession and of such organizations as the American Society for the Control of Cancer, public interest in cancer is increasing and public moneys are already available for application to its control.

Neither private nor public funds, however, can be intelligently expended without a knowledge of the problem in detail. For that reason, the Health Commissioner of Virginia at the suggestion of the McIntire Tumor Clinic of the University of Virginia initiated and completed a partial survey of the incidence of cancer in the State. Although the survey was necessarily incomplete, as is pointed out below, and although its results have not yet been thoroughly analyzed, one group of correlations of considerable suggestive importance to anyone interested in the problem of cancer has been made the subject of this brief report.

METHOD

A "Cancer Survey Record" card (Figure I) for each individual case of cancer was designed and printed. In addition to the usual statistical inquiries, including name, address, age, sex, race, etc., the following information was requested: the name of the physician in charge of the case, the economic status of the patient divided into four classes (charity, part pay, full pay, well-to-do), the tentative and final diagnosis, the fact or absence of microscopic study, the location of the lesion, the date of the first symptom, the date of the first visit to a physician on account of the presenting symptoms, the treatment both before and after seeking medical advice, the physician's estimate of the prognosis, and the date of death, if the patient succumbed. These cards were distributed in the summer of 1937 to the Health Officers of the fifty counties at that time organized under the State Board of Health. Each Health Officer was instructed to deliver cards to each physician in his county, requesting the completion of a card for each patient that had consulted him for malignant disease during the preceding twelve months. The cards were then collected by the Health Officers and forwarded to the Health Commissioner, who, in turn, sent them to the McIntire Tumor Clinic for preliminary tabulation. Any duplicate reports on individual cases from different physicians were first eliminated.

FIG. I
CANCER SURVEY RECORD

No.

Physician		Date	
County (City)			
Name of Patient	Color	Sex	Age
Address			
Economic Status: Charity ; Part pay ;			
Full pay ; Well-to-do			
Diagnosis—Tentative:			
Final			
Microscopic Section Made?			
Location of Lesion			
Date symptoms first noted by patient			
Date of first visit to physician in regard to symptoms			
Treatment: Before physician consulted			
After physician consulted (including places and dates)			
Prognosis (if dead, date and cause)			
(Note: Refers to patients seen in past year)			
Signed		H.O.	

Virginia State Department of Health.

RESULTS

The incompleteness of the survey is at once obvious. Only half the counties of the State could be covered and only forty-three counties* furnished reports. Furthermore, many physicians in the counties

*From the State Department of Health, Richmond, Va., and the McIntire Tumor Clinic, University of Virginia School of Medicine, University, Va.

*Albemarle, Alleghany, Arlington, Augusta, Brunswick, Buchanan, Buckingham, Dickenson, Dinwiddie, Fairfax, Greene, Halifax, Hanover, Henrico, Isle of Wight, Lee, Lexington, Madison, Mecklenburg, Montgomery, Nansemond, Norfolk, Northampton, Nottoway, Orange, Page, Prince Edward, Pulaski, Rappahannock, Rockbridge, Rockingham, Russell, Shenandoah, Smyth, Southampton, Spotsylvania, Sussex, Tazewell, Warren, Washington, Westmoreland, Wise, Wythe.

covered failed to fulfill the requests of the Health Officers. Finally, the records of a small proportion of cooperating physicians were inadequate to supply a complete detailed report on all cases seen by them.

Cards representing a total of 770 cases were collected, of which 651 were white, 105 colored, and 14 unspecified. 296 patients were dead, 435 alive, and in 39 instances the survival of the patient was not indicated. The commonest locations of the lesions (Table I) were the uterus (151 cases), the

TABLE I

OCCURRENCE BY LOCATION IN THE BODY

Uterus	151	Leg	9
Breast	129	Kidney	7
Face and Scalp, etc.	126	Brain	5
Stomach	78	Esophagus	5
Liver	39	Larynx	5
Prostate	29	Small Intestine	5
Rectum	29	Vulva	5
Bladder and Urinary Tract	17	Arm	4
		Mouth	4
Ovary	17	Testicle	4
Bones	16	Thyroid	4
Colon	16	Tongue	4
Lung	15	Fallopian Tubes	4
Hand	14	Appendix	3
Respiratory (Upper)	13	Penis	3
Pancreas	11	Parotid	2
Gall-bladder	10	Vagina	2
Lymph Nodes	10	Back	1
Neck	10	Bile Duct	1
Abdominal Viscera	9	Urethra	1
Eye	9		
		Total	826

The total number of sites shown (826) is greater than the number of reports (770) because, when the malignancy occurred in more than one location in the same patient, it was counted each time as an occurrence in that organ.

breast (129 cases), the skin of the face and scalp (126 cases), and the stomach (78 cases). The total number of lesions shown in Table I (826) is somewhat greater than the total number of cases because in many instances the cancer was recorded by the physician in more than one site (e.g., large bowel and liver).

Two of the most important factors in cancer control are, of course, the prompt availability of adequate medical attention and the ability of the patient to make use of what medical services are available. An attempt to measure the latter was made by comparing the economic status of the patient with the interval between the first symptom and the first medical advice. In 751 instances of the total 770, information as to economic status was furnished.

TABLE II

DISTRIBUTION OF ECONOMIC STATUS

(In 625 reports in which the interval between the first symptom and the first visit to a physician was recorded.)

PAY	No.	%	CHARITY	No.	%
Well-to-do	34	5.4	Part pay	161	25.8
Full pay	308	49.3	Free	122	19.5
Total	342	54.7	Total	283	45.3

Somewhat over one-half of these (399) represented either well-to-do or full-pay patients, and 352 part-pay or charity patients. In 625 instances of the 751, information was also furnished covering the interval between the onset of symptoms and the first visit to a doctor. The distribution of economic status in this group of 625 was roughly proportional to that of the group already cited (Table II).

TABLE III

RELATIONSHIP OF ECONOMIC STATUS TO PROMPTNESS OF MEDICAL CARE IN 625 CASES

INTERVAL BETWEEN FIRST SYMPTOM AND MEDICAL ATTENTION	FULL-PAY PATIENTS (342)	PART-PAY AND COMPLETE CHARITY PATIENTS (283)
Up to 1 week	24.2%	14.8%
Up to 1 month	38.0%	25.7%
Up to 6 months	63.4%	56.8%

Table III presents the results of comparison between the economic status of the patient and the interval of delay between the first symptom and the first visit to a physician in these 625 cases. It is seen that, whereas almost a fourth of the patients able to pay consulted a physician within a week, only a seventh of those in the partial or complete charity group did so. The difference is slightly less striking after a month has passed by and almost disappears at six months.

COMMENTS

The incompleteness of the survey makes any conclusions on the actual size of the cancer problem in Virginia impossible in the present stage of analysis of the data. It is expected that further statistical study may render the results of the survey more valuable. If, for instance, one compares from the books of the Registrar of Vital Statistics the number of deaths from cancer in a county with the number of deaths reported in the survey, the degree of accuracy of the survey in that county can be estimated and an approximation to the true total number of cancer cases reached. Such evaluation studies are in prog-

ress in the office of the Commissioner of Health.

The interesting comparison between economic status and promptness in seeking medical advice, which is the reason for this presentation, needs little comment. It is obvious that delay in going to the doctor is appreciably greater among the poor and the completely dependent than among those able to pay. That this is entirely a function of the economic status is not necessarily true. Ignorance and superstition are unquestionably both more prevalent among the lower income groups, and these factors may be the predominating cause of delay. In other words, the results of this comparison cannot be taken as an index of the availability of medical services. In a more positive sense, they can be taken to indicate the necessity for both an increase in medical opportunities for the low income class and an intensification of the present educational campaign about cancer. They seem to point to a need for reaching with information about cancer a group in the Commonwealth that existing campaign methods through clubs and printed literature are not apt to reach.

Finally, it is interesting that about 20 per cent of all patients seeking cancer treatment are actually without funds and that nearly one-half may be considered in an underprivileged group. If these figures, derived in a somewhat selective way, could be applied to the general population, the magnitude of economic distress in Virginia in the year 1937 should be considered appalling.

THE COMPENSATORY MECHANISMS IN ANEMIA.*

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The animal body is an extremely unstable system, a delicately balanced equilibrium oscillating within narrow limits, the resultant of many forces acting in various directions. To every external change, small or large, it replies with definite reactions tending to the re-establishment of its equilibrium. A constant succession of actions and reactions is taking place in the body. The study of any disease therefore involves much more than the changes occurring in the affected organs or tissue, but the changes, passive and reactive, occurring throughout the whole body in an attempt to re-establish equilibrium or maintain health. This "synthetical" pathology takes the whole body into consideration. Without this our studies are meaningless.

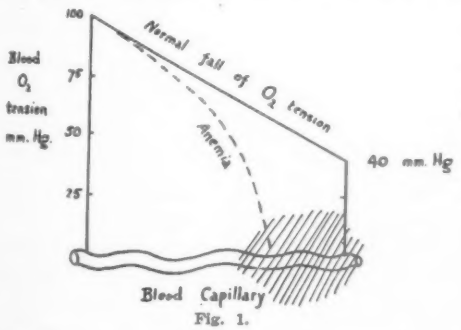

Fig. 1.

No better example of this general proposition could be found than the body changes in anemia.

Normally, arterial blood enters the capillaries with an oxygen tension of about 100 mm. Hg., and leaves with the tension reduced to about 40 mm. Hg. In anemia, however, although arterial blood enters with the same oxygen tension, there is such a shortage of oxygen that a large proportion of this gas is absorbed from the blood, and the tension falls. The tension may be too small for oxidative processes. Unoxidized katabolic products accumulate in the tissues, together with CO_2 (Fig. 1).

The organism, therefore, is faced with two problems, the restoration of the oxygen supply and the removal of CO_2 and katabolites.

The various compensatory measures adopted may be classified thus (Table A).

TABLE A
COMPENSATORY MECHANISMS IN ANEMIA
(Oxygen Supply and CO_2 Removal)

A. *Blood*
- Greater dissociation of HbO_2 at low O_2 tensions
- Utilization of oxygen reserve
- (Increased hemoglobin concentration in red cells)
- (Alterations in specific oxygen capacity of hemoglobin)
- (Diminished size of red cells)

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

B. *Blood-Forming Organs*
Spleen contraction
Bone marrow, new blood formation
C. *Circulatory*
Dilatation of capillaries
Increased cardiac output
D. *Tissues*
(Lowered metabolism)
Increased tolerance
Increased muscle hemoglobin
E. *Respiratory*
Hyperpnea
Increased vital capacity

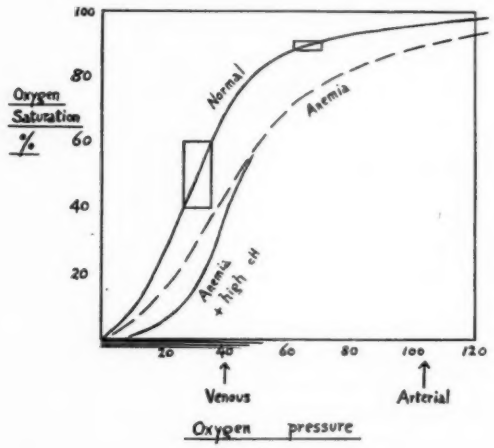

Fig. 2.

A. *Blood Changes:*

1. Increased dissociation of HbO_2 at low oxygen tensions. A glance at the oxygen-dissociation curve for blood (Fig. 2) shows that at low oxygen tensions the curve falls rapidly, i.e., for a given fall in oxygen tension, larger volumes of oxygen are given off. Thus anoxic tissues obtain a large amount of oxygen until the tension is restored. In anemia, however, the dissociation curve is on a slightly lower level which reduces the oxygen volume dissociation, but this is counter-balanced by the rise of cH in the tissues, which steepens the curve at the lower tension levels once more.

2. Arterial blood contains 20 per cent and venous blood 14.5 per cent oxygen, i.e., the A-V difference is 5.5 volumes per cent (Fig. 3). With increasing anemia this A-V difference remains unaltered, until at about 40-50 per cent Hb the A-V difference diminishes. This might be brought about by a diminished consumption of oxygen by the tissues, or by a larger blood flow through the tissues. Of these two possibilities only the latter occurs (see later).

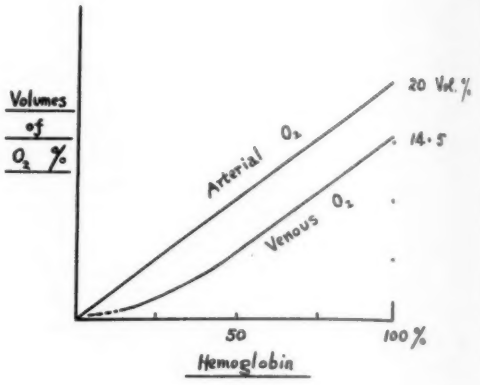

Fig. 3.

3. Theoretically the carriage and dissociation of oxygen might be facilitated by an increase in the Hb concentration in red cells, by a diminution in size of red cells (thus giving a greater surface per unit mass of cells) or by an increased specific oxygen capacity for Hb. There is no evidence however that these changes occur as a compensatory measure.

B. *Blood-Forming Organs:*

1. Splenic contraction occurs as an emergency measure as part of a general sympathetic-adrenal activity. In sudden anoxias, e.g., after hemorrhage, or at high altitudes, contraction forces more red cells from the splenic reservoir into the blood stream. Our own observations at moderate altitudes show that this effect lasts only a day or two.

2. Bone-marrow activity is a slower, long-range mechanism for new blood formation, provided the necessary factors are present, i.e., Castle's intrinsic factor, the extrinsic factor, iron, copper vitamin C and thyroxin.

C. *Circulatory:*

1. Dilatation of extra capillaries is the direct effect of the action of unoxidized katabolites resulting from oxygen shortage. Such dilatation of more and more capillaries ensures a sufficient oxygen tension throughout the tissues, but it demands a larger cardiac output to fill them with blood at the same rate of flow.

2. Increased cardiac output does not take place until the Hb has fallen to about 40-50 per cent (Fig. 4). With further fall, the output increases at a greatly accelerated rate. This is due to an increased stroke volume, and hardly at all to increase of rate. Thus the same blood can be used over and

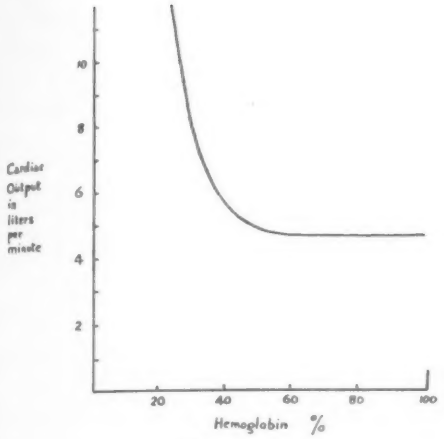

Fig. 4.

over again—a great turnover; CO_2 and katabolites are swept out of the tissues; and the blood pressure is maintained (thus balancing the tendency to fall owing to diminished viscosity of blood). The increased blood flow also accounts for the diminishing arterio-venous oxygen difference when Hb falls below about 40 p.c. (Fig. 3). This increased cardiac output may result in cardiac hypertrophy, especially in those doing heavier work.

The immediate cause of the greater output is uncertain. Various factors contribute, e.g., increased respiration (respiratory pump action), decreased blood viscosity and veno-constriction accelerating venous return to the heart. It is difficult to determine where this cycle commences. There is no increase of blood volume, except in chlorosis, hookworm anemia, etc.

D. *Tissue Changes:*

1. Metabolism, if decreased, would help the oxidation problem, but there is no evidence of decrease. Rather, there is some increase, probably due to the increased work of the heart and respiratory muscles.

2. Tolerance: Body cells can adapt themselves to a lower oxygen tension if given time, and thus allow anemic patients more comfort at rest. Indeed, very low tensions may in time be tolerated. But fatigue and lassitude are the result.

When Hb falls to 30 per cent there is danger of irreparable damage if prolonged. Below 20 per cent, the patient does not last long. The increasing cardiac output cannot keep pace with the falling oxygen content. The result is cardiac dilatation, diminished cardiac filling, and finally failure.

3. Muscle hemoglobin is the dark red pigment of muscle and is quite different from blood Hb. It has the property of abstracting oxygen from circulating blood under greatly reduced tensions, thus allowing oxidations to be maintained beyond otherwise impossible limits, e.g., at 20 p.c. Hb or less. In pernicious anemia muscle Hb increases as blood Hb falls. Some authorities believe this to be the chief compensation in this disease.

E. *Respiratory:*

Although pulmonary hyperventilation can have no effect in increasing the oxygen saturation of the blood and therefore the oxygen supply to the tissues, it is of value in other ways.

Owing to its low red cell content, the buffering power of the blood, or its ability to take up CO_2 and other acids with minimal rise in cH, is diminished. CO_2 and other acids therefore tend to accumulate in the tissues, with rise of cH. This leads to stimulation of respiration (in depth but not in rate) with

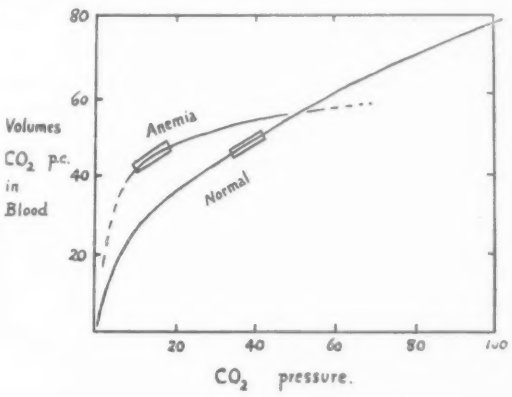

Fig. 5.

the following results: (a) CO_2 tension of blood and tissues fall to subnormal levels. As a glance at the CO_2—dissociation curve for blood shows, more CO_2 is taken up per unit rise of CO_2 tension when the tension is low than at high tensions, thus compensating for the poorer buffering power in anemia (Fig. 5). (b) Increased activity of the respiratory "pump" facilitates an increase of blood flow into the heart, of cardiac output, and therefore of blood flow through the tissues, and thus helps further to sweep out CO_2 and katabolites from the tissues and maintain normal pH.

In time, and especially in those engaged in heavier work, hyperventilation leads to enlargement of the

chest and increased pulmonary vital capacity. Although in our experience, the respiratory center becomes more sensitive as a result of moderate acute anoxia (a condition that may last for many days), the reverse happens in long continued anoxia, an increased tolerance.

DISCUSSION

DR. WILLIAM B. PORTER, Richmond: I shall not attempt to discuss Dr. Apperly's paper from a technical standpoint, but merely point out the direction in which this study leads us. One must be increasingly impressed with the difference in the reaction of individuals to the same disease process. In the presentation of these very interesting data, Dr. Apperly has been discussing what he refers to as compensatory mechanisms which go into play to protect the individual in the event there is a definite and positive diminution in the oxygen-carrying capacity of the blood. The compensation, however, is never a complete process. It always compromises the integrity of the organism because of the fact that it draws upon those reserves which are inherent in all individuals to protect him when he is put under unusual stress. When disease processes or alterations in certain essential physiological mechanisms draw upon these reserves, the capacity of the patient to resist disease is naturally compromised. The availability and the character of these various mechanisms which we refer to as compensatory may be re-interpreted in the terms of what you and I, as clinicians, refer to as resistance to disease. This seems to me to be a very fundamental point in the application of Dr. Apperly's studies to the clinical study of disease.

When we review and try to visualize what disease really is, as we see it in clinical practice, we come to the following conclusion: that disease is a reaction, or the result of a reaction, which is an interplay between the effects of the invasion of the human organism or the animal kingdom by various toxic agents—either bacterial, chemical or physical—or the results of biological decay and the introduction into the field of these mechanisms to re-adjust the individual; it is the interplay between these compensatory processes on the one hand, and the reaction of the individual to these agents on the other hand, that we visualize in the individual patient as disease. Disease is not an absolute factor; it is a relative factor. The more evenly these compensatory factors are distributed over the organism, the more perfect is this adjustment because it renders less likely the giving way of some vital process. In other words, it is similar to distributing responsibilities over a committee rather than to a single individual.

In the application of these facts to clinical medicine, it becomes apparent that in the treatment of disease we possess few so-called specific remedies. In the combating of disease processes and in the enabling of the individual to recover from disease, it is incumbent upon us in our approach to clinical problems to think in terms of what the processes are that are going into play to enable the individual to recover from his disease; and in our therapeutic efforts we should invariably take the line which promotes the development of these compensatory processes and not hazard their development. I think this is beautifully illustrated in the processes which take place in certain diseases which I should like to mention, but for which I have not time.

VARICOSE VEINS OF THE BROAD LIGAMENT.*

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Christiansburg, Virginia.

Varicose veins of the broad ligament do not receive the attention they deserve in considering the causes of pelvic pain in women. The standard textbooks give very little consideration to this subject and very little is said regarding the diagnosis and treatment. It is natural to think that the average doctor would get the impression that this condition is rare and very seldom thinks of it as a cause of pelvic pain and therefore overlooks many cases. There are many cases who go from one doctor to another with a diagnosis of pelvic neurosis, hysteria, etc. I certainly feel that in treating women with pelvic compaints, this condition should be borne in mind, for, unless thought of, it is very easily overlooked. Unless corrected, complete relief will not be secured, and if allowed to go on it may lead to still more disabling diseases.

The literature on the subject is limited in comparison to other equally important subjects. The first American case was reported by Dwight in 1877. In 1888 Dudley described varicocele of the broad ligament and reported four cases. Emege in 1921 and 1925 gave a good anatomical discussion and reported fifty-nine cases. Darnall in 1914 reported six cases. There are in addition to these papers many other scattered reports.

In discussing this subject it is necessary to understand the anatomical considerations involved. The pelvis is well supplied with veins through five or

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

more well defined groups: vaginal, uterine and hemorrhoidal, which drain into the inferior hypogastric vein; and the two pampiniform plexi which empty through the ovarian veins. The right ovarian vein empties directly into the vena cava, the left into the left renal vein. There is only one valve in this system, and it is located at the end of the right ovarian vein. Most of the venous group is fairly well supported by the surrounding tissue except the pampiniform plexus. Veins which run close to the large arteries such as is seen in close association of the uterine artery and vein are not often varicosed. The artery fortifies the vein and tortuosity is prevented. The support of the pampiniform plexus is very poor, the only real support being at the uterine ends, the ovarian ends hanging free like a hammock, the only fixation occurring higher, at the point where the ovarian passes over the brim of the pelvis. There are two portions to each plexus, one above and one below the hilus of the ovary. The lower half is very tortuous and consists of numerous branches. These veins are very poor in muscle fibres and the loose surrounding tissues, through which they pass, offer very meager support. As a result they are very tortuous and distended. The first three or four inches of the ovarian vein passes between two layers of peritoneum with very scant supporting tissue. This strikingly predisposes to back pressure. The ovarian vein is first firmly anchored at the pelvic brim with the distal end attached to movable organ, uterus and ovaries. The mobility of these parts, with a fixed point at the pelvic brim, tends strongly to tortuosity. It is a mechanical problem.

Varicose veins of the broad ligament are seldom found in women who have not been pregnant. Any backward or downward position of the uterus will interfere with venous drainage. Retro-version-flexion is a common causal agent which kinks or distorts the veins at the pelvic brim. Pregnancy with subinvolution and pelvic engorgement is considered the most important factor. All of us have probably observed during Cesarean section the engorged condition of these veins, and can easily imagine that if subinvolution occurs, and this distention persists, permanent dilatation can easily result. Associated conditions as constipation, ptosis, disturbed menses, frequent ungratified sexual excitement, certain heart lesions, diseases of the liver, all tend to aggravate the condition.

In long standing varicose veins in the female pelvis, there is a chronic passive congestion that leads to degenerative changes in the pelvic organs. The ovaries are usually the first affected, showing cystic changes, later fibrous. The uterus is also involved; the endometrium becomes edematous and hyperplastic. The cervix is enlarged and boggy and later the fundus hypertrophies and the muscles undergo fibrous degeneration, giving the so-called fibrosed uterus.

SYMPTOMS

The prominent presenting feature of this condition is pain. It is of a rather distinct character and if carefully studied will help greatly in arriving at a diagnosis. Ordinarily the patient complains of a pain or distress deep in the pelvis, on both sides, usually worse on the left side. It is of a deep dull aching character, aggravated by being active, especially lifting or taking long walks, and quickly relieved by the recumbent position or better with foot of the bed elevated. In many cases the patients think they have "ovary disease". The condition is more or less like the same process found in the male. We know that scrotal varicocele gives a dragging sensation, with pain and disability. There are many such cases in the male, however, that do not give disabling symptoms, and why, I do not know. Probably the threshold to pain is much lower. I think the same is true when varicose veins occur in the female pelvis.

The menses are usually prolonged, more painful and more copious at first, later becoming scant as a result of the sclerotic changes in the ovaries. Leucorrhea is present in nearly every case and is greatly aggravated at the menses. Backache is very common and extends well up in the back and sometimes down the legs. Bladder irritability is a frequent complaint and especially at the menses. There is often a change in the menstrual cycle, the interval at first being shortened and then prolonged, the flow becoming more profuse. The women are usually of a nervous, melancholic disposition.

The physical findings are few and one of the striking features of this condition is the severity of the complaint which is out of proportion to the findings on examination. There is no abdominal rigidity, no tenderness over the sacrum, no definite masses are felt in the adnexal regions, there being at best just a sense of bogginess. There is in spite of the negative findings, extreme tenderness on palpating the adnexal regions. The diagnosis must be made by

the process of elimination. The blood and sedimentation test is very valuable in excluding salpingitis or any chronic inflammatory diseases of the pelvis. There is a definite drop in the sedimentation rate in an inflammatory process. Another factor that makes the diagnosis more confusing is the fact that the majority of the cases of varicose veins in the broad ligament are associated with other pelvic pathology.

Another important point is that pain in inflammatory diseases of the pelvis is not relieved by assuming the prone or knee chest position, while in varicosities there is a definite relief.

In my opinion there are very few cases accurately diagnosed before operation. However, this should not discourage us from keeping an open mind and to think of it as a possibility in pelvic pain in women and not allow them to go from one doctor to another begging some one to give them relief.

TREATMENT

The most important treatment is prophylactic. It should begin about the end of the first week after confinement. A visualization of the condition present after delivery will convince one of the benefit to be had from the prone abdominal and knee chest positions. It aids in the pelvic venous drainage and allows the parts to assume the normal relations and the supporting tissues to regain their tone. The posture should be kept for a period of twenty minutes three times daily for six weeks after delivery.

If this was done universally, there would be fewer cases of malposition and varicosities than we now have. It is a simple measure and the cooperation of the patient is gained by an explanation of the benefits to be derived. After varicosities have developed extensively, the ordinary conservative methods offer very little promise of a final recovery. In very moderate cases palliative measures, such as astringent douches, ichthyol and glycerine tampons, and frequent assumption of the knee chest position may add comfort to the patient. In well-developed cases, the only treatment that will give relief is surgical. This is one place that it is necessary to use common sense and surgical judgment. The surgeon must be familiar with the pathology and select the type of operation that will give relief. On the operative table, the broad ligament should be examined before the Trendelenburg position is assumed as the veins will then empty. I am sure I have made this mistake several times and overlooked the condition. The surgical treatment varies from ligation of the engorged veins and ventral suspension of the uterus to radical procedure as panhysterectomy.

In mild cases in young women the proper suspension of the uterus and shortening the round ligament will suffice. In addition, I believe suture shortening of the utero-sacral ligaments will pull the cervix upward and backward and assist in increasing traction on peritoneum, thereby giving additional support to the veins. If the veins are very prominent, they should be doubly ligated and incised, removing a small section of the vein just as you do in a scrotal varicocele. The ovaries are usually congested and many small cysts are present. They should not be removed unless other complications are present. If the patient is very nervous and pain is very severe in character, I believe a pre-sacral sympathectomy should be done. This is a simple procedure and only requires about fifteen minutes longer to do and has certainly proved beneficial in many cases.

In well-advanced cases past forty years of age, associated with pelvic inflammatory disease and fibrous uterus, it is best to do a supravaginal hysterectomy or a complete hysterectomy. In this type of case, it is the only procedure that will offer lasting relief.

CONCLUSIONS

1. The presence of varicose veins in the broad ligament is not recognized as frequently as it should be as a cause of pelvic complaints in women. The recurrence of the old symptoms after some pelvic operations is due to varicosities being overlooked.

2. Deep pelvic pain, persistent, increased before and during menses, relieved by recumbent position, and malposition of uterus present suggest the diagnosis.

3. A pre-operative diagnosis is rare.

4. It is caused most often by malposition of the uterus which favors subinvolution.

5. Properly selected surgery will give relief.

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THE DIAGNOSIS AND TREATMENT OF OBSTRUCTING TUBERCULOUS LESIONS OF THE TRACHEOBRONCHIAL TREE.*

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Richmond, Virginia.

One of the interesting and satisfactory medical developments of the past half century has been the decrease in the incidence of all forms of tuberculosis. Tuberculous disease of the cervical lymphatic nodes, which at one time was a frequent occurrence, has almost disappeared, and the morbidity and mortality rates in pulmonary tuberculosis have been reduced to a remarkable degree. In view of these facts, the increase in reported cases of unusual types of pulmonary tuberculosis, chiefly of bronchial origin, is interesting.

There is evidence to suggest that cavitation in the lung from tuberculosis is the result of infection of the wall of a small bronchus with formation of stricture and associated localized emphysema of that portion of the lung beyond the narrowed lumen of the bronchus. Although cavities in the lung from tuberculosis are observed with no greater frequency than previously, the relative incidence of obstructing tuberculous lesions of the trachea and larger bronchi has apparently increased. Tuberculous infection of a mediastinal lymphatic node may result in narrowing of a bronchus from extrinsic pressure or ulceration of the node through the bronchial wall. In either case the signs and symptoms encountered are identical with those produced by an ulcerative intrabronchial lesion.

Possibly this increase is more apparent than real, and it may be that the condition merely is recognized more frequently due to the rather widespread employment of bronchoscopy in diagnosis, and to greater appreciation of the fact that stridor is a significant symptom of tracheal or bronchial obstruction. Recognition of tuberculous disease of secondary bronchi is more easily accomplished by bronchoscopic study than by post-mortem examination, and in the past many tuberculous bronchial strictures may have been overlooked at post-mortem.

Tuberculous infection producing partial obstruction of the trachea may occur without demonstrable pulmonary disease, and it is probable that tuberculous ulceration of a bronchus with formation of stricture may be present without associated lesions in the parenchyma of the lung. Therefore, the signs and symptoms of tracheal and bronchial tuberculosis will depend on whether associated disease is present beyond the narrowed area. Differential diagnosis of this type of tuberculosis from a non-tuberculous inflammatory lesion or malignant obstruction is particularly difficult, and I shall attempt to point out some features which may facilitate diagnosis.

Cough is a prominent symptom of tuberculous bronchial or tracheal obstruction, and may be of the dry, irritative type, such as is present with malignant obstruction in the early stages of the disease, or it may be associated with sputum. Unless the disease results from ulceration of a tuberculous node through the wall of a bronchus, expectoration of blood is usually not noted. Severe and repeated hemorrhage may occur in those cases in which there is erosion of the bronchial wall. Daily expectoration of blood-stained mucus, which is frequent in malignant bronchial obstruction, is rarely observed in tuberculous disease. The expectorated secretion may reveal

*Presented at the Southern Tuberculosis Conference and Southern Sanatorium Association meeting, Louisville, Ky., September 19, 1938.

Bacilli of tuberculosis, although sometimes repeated examination of the sputum may be required before their presence is demonstrated.

Fever may be absent, intermittent, or continuous, depending on the presence or absence and degree of tuberculous or secondary infection in the lung distal to the bronchial stricture.

Narrowing of the trachea or a bronchus usually causes stridor, which is an annoying symptom. When the bronchus is completely occluded, stridor disappears. Dyspnea is noted when the obstructing lesion is located in the trachea, but when it is located in a bronchus, dyspnea is less prominent than in cases of obstruction from carcinoma.

Any lesion which produces very much obstruction in the trachea may cause dysphonia. Carcinomatous lesions in the trachea rarely cause hoarseness unless the larynx is directly involved by the growth, when interference with phonation is usually permanent. When tuberculous disease in the trachea is located immediately below the larynx, without direct laryngeal involvement, it may produce intermittent hoarseness. Hoarseness, which is due to paralysis of a vocal cord from injury to a recurrent laryngeal nerve, is frequently seen in malignant disease of the trachea or bronchi and rarely in tuberculosis.

Physical signs depend on the location and type of the lesion and the degree of obstruction. Extensive infiltration of the hilar area demonstrated by roentgenoscopic examination, without physical signs, is usually the result of inflammatory disease, frequently tuberculosis. The combination of a widespread lesion without signs of bronchial obstruction is almost never found in carcinoma of a bronchus. In case of marked bronchial occlusion from tuberculosis, complete atelectasis of a lobe or entire lung may be encountered with absent breath sounds over the area supplied by the diseased bronchus. When occlusion is partial, breath sounds may be normal over the distribution of the bronchus, in marked contrast to partial occlusion from carcinoma, in which case breath sounds are usually distant or absent.

Roentgenoscopic study is of very little value in differentiating tuberculous and malignant tracheal lesions, but a tuberculous lesion in the trachea is usually associated with tuberculous disease in the parenchyma of a lung, whereas a malignant lesion in the trachea is rarely associated with intrapulmonary disease. Hilar lesions of a tuberculous or non-tuberculous inflammatory nature and primary bronchial carcinoma are indistinguishable on roentgenoscopic study. Residue of lipiodal at the base of a lung may simulate any of these lesions.

Bronchoscopy is not advisable in proven, uncomplicated cases of pulmonary tuberculosis, but is frequently indicated in the diagnosis and treatment of pulmonary lesions located in the hilar areas. Superficial areas of ulceration can be seen in the trachea or larger bronchi in many cases of pulmonary tuberculosis, but unless the lumen of the trachea or bronchus is reduced in size by the lesions, their recognition is unimportant.

Tuberculous lesions in the trachea are usually more widespread than those due to malignant infiltration. In the trachea and bronchi tuberculous lesions may appear pale in character with less ulceration and less evidence of secondary infection than are present in many cases of carcinoma, but in the majority of instances the diagnosis cannot be made without microscopic examination of tissue which has been removed from the lesion. Examination of tissue removed from a tuberculous lymphatic node, which is protruding through the wall of a bronchus, rarely confirms the diagnosis of tuberculosis. If an adequate amount of tissue is obtained and no evidence of malignant change is observed, one may conclude that the lesion is likely the result of tuberculous disease.

Treatment of patients with tracheobronchial tuberculosis is unsatisfactory, and permanently favorable results are rarely obtained. Roentgenotherapy seems to benefit a few patients suffering from involvement of the mediastinal lymphatic nodes with associated pressure on, or ulceration into, a bronchus, and temporary relief has been provided for a few patients with tracheal involvement. Instrumental removal of tuberculous tissue from the trachea may enlarge the size of the lumen and ease breathing, but progress of the disease will not be arrested. Local application of various drugs and oils has not proved beneficial. Cauterization or coagulation of tuberculous ulceration has been recommended by other authors, but I have had no experience with this type of treatment in tuberculosis.

Lobectomy or pneumectomy should be considered if a stricture in the bronchus is located sufficiently distal to the bifurcation of the trachea to permit removal of the diseased tissue. Collapse of the lung by any method increases difficulty of drainage by reducing the lumen of the bronchus and usually intensifies toxemia.

Bronchoscopic dilatation of bronchial stricture will sometimes provide an increase in drainage with temporary improvement, but the end-results are not encouraging. If thorough dilatation of a stricture is followed immediately by thoracoplastic collapse of the lung, favorable results may be obtained.

CONCLUSIONS

Although there has been a decrease in all forms of tuberculosis, the incidence of obstructing tuberculous lesions of the trachea and larger bronchi has apparently increased. Stridor is a significant symptom. An infiltrating lesion located at the hilar area without physical signs of bronchial obstruction usually indicates that the process is inflammatory in origin. When there is evidence of bronchial occlusion, the lesion is usually carcinoma. Tuberculous lesions of the trachea are frequently more extensive than those of carcinomatous origin. Bronchoscopy with removal of tissue for microscopic examination is essential in the accurate diagnosis of lesions involving the trachea and larger bronchi.

Treatment of patients with obstructing tuberculous lesions of the tracheobronchial tree is unsatisfactory, but roentgenotherapy may be helpful in a few cases. Dilatation of the bronchial stricture followed by complete thoracoplasty may provide beneficial results. Neither collapse of the lung nor dilatation of the stricture will accomplish satisfactory results unless the two procedures are combined.

Medical Arts Building.

SLEEVE WIRE FIXATION OF FRACTURES—A METHOD OF FIXATION OF FRACTURES IN WHICH THE FRAGMENTS ARE SEPARATED. REPORT OF FORTY-FOUR CASES OF FRACTURES OF THE PROXIMAL END OF THE TIBIA.*

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INTRODUCTION

Fractures in which the fragments are separated more or less widely have given the writer a good deal of concern. This has been particularly true of fractures of the proximal end of the tibia where one or both of the condyles were broken off with or without the extension of the fracture line into the knee joint and with or without fractures of the condyles from the shaft of the tibia.

The usual methods have been tried by the writer with varying success, but he has not thought that closed reduction with application of plasters, the use of traction, the use of nails and screws or the use of wood worker's clamps have been entirely efficient. In those cases where closed reduction was possible, with the application of plasters, or where the fragments were in such good apposition that little or no reduction was necessary, plasters being applied, there seemed to be a great tendency to the depression of the fractured condyle, from muscle pull, even though this was difficult to explain.

The writer has found at times that although plasters get a general alignment, yet they do not compress separated fragments together. Nails and screws, in fact, do not seem to give as much compression as one would anticipate, and if by any chance they have to be removed, more or less of a surgical procedure is necessitated later. The wood worker's clamp, while affording good compression, is bulky and apt to limit ambulation considerably.

If by the use of any of the above described methods of treatment, results are unsatisfactory, actual deformities of the knee, consisting of bow-leg or knock-knee, a very relaxed, unstable knee, or a knee in which the semilunar cartilages are likely to become displaced, ensue. Resulting disabilities are accompanied frequently by painful knees. The above described methods also require quite a period of immobilization, with resultant stiffness that is likely to involve the knee joint. Incomplete reduction of the fracture may lead to irregularities in the knee joint, which in turn may result in an arthritic condition later.

DESCRIPTION OF METHOD

The method herein described by the writer offers the following advantages:

1.—Firm fixation of the fragments, with very close

From the Research Department of the Wheeldon Orthopedic Foundation.

*Read before the Surgical Section of the Medical Society of Virginia at Danville, Va., October 4-6, 1938.

approximation, which reduces the fracture line in the joint space to a minimum.

2.—Early healing of the fracture, through accurate reduction.

3.—Early mobility of the joint, through ability to keep the fixation apparatus in place and still to remove supporting plaster altogether.

4.—Simple removal of the fixation apparatus, as an office procedure, when healing is complete.

5.—Good cosmetic results with small post-operative scars when apparatus is removed.

APPARATUS

The apparatus consist of a Kirschner wire; two sleeves, each of which bears a set screw in its external end, which fit over the wire, and two tighteners with set screws in their external ends to produce compression; a key for locking the set screws; a wrench for adjusting the tighteners.

INTRODUCTION OF APPARATUS

The fracture is reduced either by closed reduction, with or without traction, or by open operation, the latter usually being unnecessary. When the X-ray films show that the fragments are reduced in good relative position, even though they be separated somewhat, the patient should be removed to the operating room where the extremity is surgically prepared. The direction of the compression desired is determined from antero-posterior and lateral X-rays, and the points of entrance and exit of the wire determined. At these points a few drops of novocaine are instilled in the skin. A fine Kirschner wire is then driven through the fragments with the usual apparatus, the writer using a motor for this, as the high speed cuts down any pain which might be produced by the introduction of the wire. A small incision—3/8 of an inch long—is now made at the entrance and the exit of the wire, and these openings are stretched a little with a hæmostat, the tissues between the skin and the bone being opened with the same hæmostat, the periosteum being lifted if possible. A sleeve, long enough to reach from the bone to a point about a quarter of an inch external to the skin, with the set screw exposed externally, is now introduced on each end of the wire, with the internal ends tight against the bone. The set screws are left loose. A tightener is now applied over each sleeve, and the set screws on the ends of the tighteners screwed down securely. With the wrench, the tighteners are manipulated, driving the sleeves together, at the same time compressing the fragments in place. The result is checked by the fluoroscope. When sufficient compression has been obtained, the set screws on the ends of the sleeves are tightened firmly, and the tighteners removed. A sterile dressing is now applied over the whole apparatus and post-operative X-rays taken. If the reduction is satisfactory, the ends of the Kirschner wire are cut off, sterile dressings are applied over the sleeves, sterile sheet-wadding is applied and a plaster is applied,

Fig. 1.

ordinarily from the toes to the groin, although the writer has been reducing the amount of plaster used until, at the present time, he feels it would be possible to simply wrap a crinoline dressing over the tibia including the apparatus, or even to apply simply a sterile dressing, with no further immobilizing apparatus, unless the shaft of the tibia be broken from the condyles. The fracture is X-rayed at regular intervals, and when union seems to be satisfactory, one sleeve is thoroughly cleaned up and washed off with sterilizing solution; the set screw is loosened; the sleeve is removed; the wire is withdrawn from the bone by pulling the sleeve on the opposite side of the leg. A smooth, round hole, about a quarter of an inch in diameter, is left, which usually heals completely in from five to seven days, only a slight dimple being left to mark the entrance and exit of the wire. In the meantime it has been

possible to start physiotherapy and activity for the patient at the end of ten days or two weeks, and by the time the apparatus is removed, good mobility is obtained in the joint.

REPORT OF SERIES

Number of cases—44.

Average length of time sleeve wire was left in the bone—27 days.

Average duration of plaster before physiotherapy was started—23 days.

Average duration of continuation of plaster, after physiotherapy was started—10 days.

Average length of time in which crutches were used, from date of operation—47 days.

Average number of days during which cane was used, following the use of crutches—11 days.

Average length of time before full activity was resumed after operation—121 days.

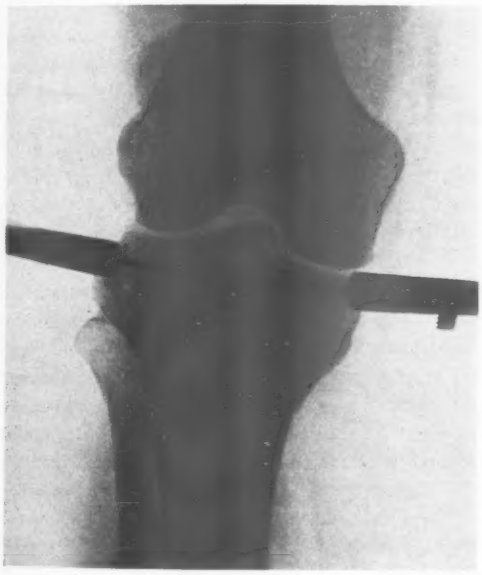

Fig. 2.

All cases returned to the occupation pursued before the fracture occurred. The method herein described has also been used in the treatment of fractures in the distal end of the femur, where the condyles were separated; in fractures about the ankle joint, where the tibia and fibula were separated; in fractures of the lower end of the humerus; in oblique fractures of the shafts of long bones, and in displacement of tarsal bones.

Figures 1 and 2 illustrate a typical case before and after introduction of the sleeve wire.

SUMMARY

The herein described method of fixation of fractures, where the fragments are separated or are likely to separate, seems to offer the following advantages:

1.—The method is simple.

2.—Fixation is efficient.

3.—Better union can be expected.

4.—Deformity is reduced to a minimum.

5.—Stiffness of joints is reduced by early mobilization.

6.—Removal of the apparatus is simple.

7.—Post-operative scars are very inconspicuous.

8.—The method is applicable to several types of fractures of long bones.

318 West Franklin Street.

DISCUSSION

DR. ROBERT V. FUNSTEN, University: Statistics taken by various fracture committees in large groups of cases have revealed the fact that certain definite principles of treatment must be followed. One must see more than a broken bone. Healing and return of function in ligaments and muscles is equally important. The fragments may, by great force, be replaced so that union may occur with minimum deformity, yet, by exerting such force, irreparable damage may be done to the soft tissues.

It should be the aim of the orthopedic surgeon to perfect the methods of closed reduction, and with the proper training and equipment, he should be able to reduce most fractures by manipulation or traction. He should be able, by adequate convalescent care, to restore function. The method used in accomplishing this purpose might be different with case variations, and with different surgeons.

There is only one hard and fast rule, and that is to obtain as perfect an anatomical reduction and as near complete return of function as possible.

Even under ideal conditions, however, there are certain fractures which can best be treated by internal fixation. One does not look upon the problem lightly. There are unquestionable dangers which can be minimized only by the utmost care, additional equipment, and a thorough knowledge of bone surgery. The average technique of abdominal surgery is not good enough for bone surgery.

Just as there are different ways of accomplishing closed reduction, there are also various ways of accomplishing open reduction. In the hands of their advocates they may be entirely successful.

The results described by Dr. Wheeldon in his paper and demonstrated in the lantern slides speak well for the method he has used. It is particularly adapted to use in the condylar T-fractures of the long bones where the restoration of joint function is so important. It seems to allow for an early mobilization.

The principle is old, having been practiced by Allen,

Carrell, and extensively used by Thompson, but Dr. Wheeldon has, by the use of the set screw and collar, made it especially adaptable in pulling together, and holding together the two fragments of a condyle. Where the fragments are badly comminuted, however, I believe it would be necessary to fall back on the method of closed reduction and manipulation and moulding, or possibly traction.

DR. M. H. TODD, Norfolk: I just want to compliment Dr. Wheeldon on his method. I think it is mechanically exceedingly good. It is very simple, and it certainly looks efficacious.

ACUTE GLOMERULONEPHRITIS—OBSERVATIONS ON CLINICAL COURSE, PROGNOSIS AND TREATMENT.*†

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It is not surprising that an extensive literature should accumulate about a disease whose etiology and cure remain unknown a hundred years after it was first described. Certainly, the contributions on nephritis have been numerous. Neither a comprehensive review of the literature on acute nephritis nor a detailed discussion on any of its many aspects is attempted in this paper. It is the purpose of this paper to present information concerning patients with acute glomerulonephritis seen at the University of Virginia Hospital during the past ten years. From this material we have selected examples to illustrate the various courses that the disease may take, and other examples to emphasize certain features of the disease that have long been recognized but, perhaps, inadequately stressed.

MATERIAL

The material for this study has been obtained from the records of eighty-two patients diagnosed acute glomerulonephritis at the University of Virginia Hospital between the years 1928 and 1938. The records of fifteen other individuals so diagnosed were rejected because of features that cast doubt on the accuracy of the diagnosis. All the cases selected had hematuria, gross or microscopic, and proteinuria; in addition, they had edema or hypertension, or diminished renal function, as measured by elevated blood urea, or a combination of these factors. We have performed special studies from one to ten years after the acute attack on twenty of these patients. The status of sixteen other patients has been determined entirely from the record of subsequent visits to the ward or clinic.

CLINICAL COURSE

The typical picture of acute glomerulonephritis with red cells, casts, and albumin in the urine, edema, transient hypertension, headache, occasionally associated with convulsions and uremia, sometimes terminating fatally in anuria or pneumonia but usually ending in some degree of recovery in the space of a few weeks, is a familiar one and needs no description. It is well known that an attack of nephritis usually follows an infection, generally streptococcal in origin. The relationship of these infections to nephritis must still be considered unsettled in spite of the large amount of work that has been done in this direction.

The preceding event in each patient of this series is presented in Table I. About 25 per cent of the patients in our series could give no history of any sickness or symptoms prior to the onset of the neph-

TABLE I

PRECEDING EVENT IN 82 PATIENTS WITH ACUTE NEPHRITIS

	Number	Per Cent
Sore Throat	21	25.9
Unknown	21	25.9
Upper Resp. Infect.	10	12.3
Scarlet Fever	8	9.8
Skin Infection	5	6.1
Otitis Media	4	4.4
Abscessed Tooth	3	3.7
G. I. Upset	2	2.4
*Miscellaneous	8	9.8
Total	82	100.3

*Including one case each of pneumonia, mastoiditis, pertussis, empyema, and pityriasis rosea.

*From the Department of Internal Medicine, University of Virginia Medical School, University, Virginia.

†Read before the sixty-ninth annual meeting of the Medical Society of Virginia, at Danville, October 4-6, 1938.

ritis. Sore throat was the most common preceding event, being present in 25 per cent. Other infections of the respiratory tract, and scarlet fever, accounted for most of the remainder. The findings from this series are similar to those previously reported by Longcope,[1] Richter,[2] Seegal,[3] and others.

The frequency of the different initial symptoms and signs is shown in Table II. From this table it

TABLE II

INITIAL SYMPTOMS AND SIGNS IN 82 PATIENTS WITH ACUTE NEPHRITIS

	Number	Per Cent
Edema	40	43.4
Malaise	9	9.8
G. I. Symptoms	9	9.8
None	9	9.8
Headache	8	8.7
Hematuria	5	5.4
Convulsions	3	3.3
Oliguria	2	2.1
Dysuria	1	1.1
Backache	1	1.1
Polyuria	1	1.1
Twitching	1	1.1
Arthralgia	1	1.1
Restlessness	1	1.1
Coma	1	1.1
Total	92	100.0

is apparent that any symptom or sign of acute nephritis may be the initial one. That a mild attack of the disease may be asymptomatic is shown by the group of individuals who developed definite evidence of acute nephritis during or following some other disease, but had no symptoms pointing to the renal involvement. This group is very important and illustrates how easily a mild attack of acute nephritis may be present but unrecognized by either the patient or the physician. When one considers that the late prognosis bears little or no relation to the severity of the acute attack, it seems probable that the cardiac and renal disorders of later life in some individuals may have had such an obscure origin.

Edema occurred in 81 per cent and hypertension in 46 per cent of this series at some time during the period of observation. An elevated blood urea was reported in 48 per cent.

The frequency and severity of the cardiac involvement in acute nephritis is probably underestimated. Most writers limit their discussion to mentioning that pulmonary edema may be precipitated by acute cardiac dilatation resulting from hypertension. Fishberg[4] states that a slight degree of cardiac insufficiency is very common, and both he and Goldring[5] have emphasized that the vascular lesions in acute nephritis are not confined to the kidneys. Levy[6] reviewed the literature up to 1930 and presented radiographic evidence of cardiac dilatation in ten patients, three of whom had normal blood pressures. In one of these patients, sixteen years of age, although the heart had returned to normal size after the acute attack, it was again found enlarged three years later when the physical examination, blood pressure, and urine were entirely normal. Levy[6] also noted changes in the T waves of the electrocardiogram in several of these patients. Marcolongo[7] reported cardiac dilatation in every patient investigated radiographically when hypertension was present. Master, Jaffee, and Dack[8] have recently emphasized the effect of acute nephritis on the heart. They studied twenty-four patients between thirteen and forty-five years of age, found hypertension in all, and abnormal electrocardiograms at some stage of the disease in nineteen. Despite their inability to demonstrate any marked gross or microscopic changes in the heart at necropsy, they attributed the cardiac symptoms, dilatation, and electrocardiographic changes to vascular lesions in the heart rather than to dilatation resulting from the hypertension, chiefly because of the prolonged P-R interval found in some patients and because the electrocardiographic changes were of longer duration than the hypertension or dilatation. The instances of cardiac dilatation with normal blood pressures reported by Levy would also seem to favor this interpretation but one must remember that the cardiac dilatation may mask a preexisting hypertension. Convulsive seizures and hydremia may also increase the work of the heart.

In Tables III and IV, and Figures 1 and 2, we have presented some observations on two patients during the acute attack. These observations show that as the renal function improved diuresis occurred, the weight decreased, the blood urea fell, the blood pressure returned to normal, and the heart decreased in size. The decrease in the measured frontal area, 20 per cent in one instance and 30 per cent in the other, indicates that marked dilatation of the heart was present during the early stages. Associated with the changes in the measured frontal area there were definite changes in the amplitude, contour, and direction of the T waves in the electrocardiogram. These

TABLE III

CASE ILLUSTRATING EARLY FAVORABLE CHANGES IN ACUTE NEPHRITIS

Case No. 1 (D. S. No. 142348): A thirteen-year-old white male admitted to the University of Virginia Hospital August 26, 1938. Ten days prior to admission he complained of toothache and noticed that one side of his face was swollen. Three days before admission he noticed swelling of the entire face, feet, and ankles, and shortness of breath on effort.

DATE	B. P. (mm. Hg.)	WEIGHT (lbs.)	ORTHODIAGRAM FRONTAL AREA (sq. cm.)	ECG. T WAVES (mm.) I	II	III	BLOOD UREA (mgm./100 cc.)	UREA CLEARANCE % N.	URINE EXAM.
8-26-38	160/120	91					50		3+ Albumin Occ. R.B.C.
8-29-38	160/105	93	94.3	+3	+5	+1			2+ Albumin 4-6 R.B.C.
8-31-38	140/105			+2	+2	+0.5	50	35	1+ Albumin Occ. R.B.C.
9- 6-38	110/80	85		+3	+3	+0.5			0 Albumin 0 R.B.C.
9- 8-38	115/85	85	75.5				48	42	0 Albumin 0 R.B.C.
9-20-38	120/70	84	65.5						0 Albumin 0 R.B.C.
9-22-38	115/70	80					34	117	0 Albumin 0 R.B.C.

changes, regardless of their pathogenesis, indicate alteration in the structure and function of the heart and illustrate the strain that this organ undergoes in some cases of acute nephritis. The fact that only one of these patients had dyspnea, while neither of them had pulmonary edema, gallop rhythm, accentuated pulmonic second sound, or evidence of increased venous pressure, suggests that these changes occur more frequently than has been suspected.

PROGNOSIS

It is well known that neither the severity of the acute attack nor any special feature of the attack is of much value in estimating the late prognosis. The information gained from the study of a series of similar patients over a period of years is helpful in estimating the probable subsequent course in a patient, only if the status of that patient and the time elapsed since the acute attack is known. Repeated, careful examinations of the patient after the acute attack has passed are essential in every instance and are much more valuable in predicting the future course of that particular individual than any study of a group of similar cases, no matter how large.

Addis[9] states that healing occurs during the first year in three-quarters of the patients with acute glomerulonephritis, and that there is no instance of healing after the disease has lasted for five years.

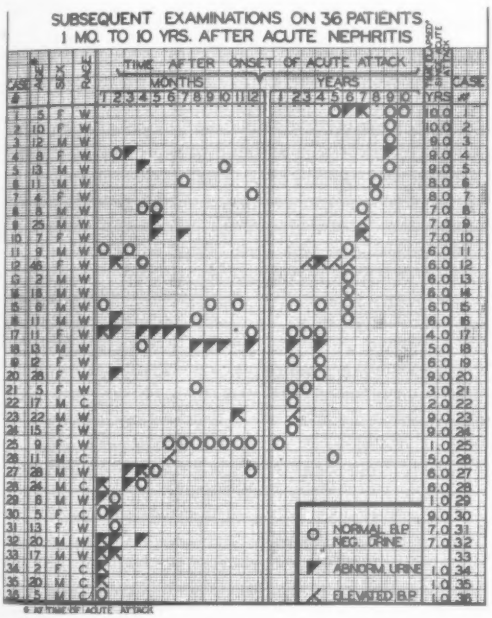
TABLE IV

CASE ILLUSTRATING EARLY FAVORABLE CHANGES IN ACUTE NEPHRITIS

Case No. 2 (H. G., No. 101204): A twenty-one-year-old white male admitted to the University of Virginia Hospital, August 19, 1938. About two weeks prior to admission the patient had a severe sore throat for five or six days. A few days after onset he noticed slight puffiness under both eyes. During the week before admission he noticed a diminution in urinary output, dark urine, and gradually developing swelling of the entire body.

DATE	B. P. (mm. Hg.)	WEIGHT (lbs.)	ORTHODIAGRAM FRONTAL AREAA (sq. cm.)	ECG. T WAVES (mm.) I	II	III	BLOOD UREA (mgm./100 cc.	UREA CLEARANCE % N.	URINE EXAM.
8-19	160/100	179					86		4+ Albumin 10-20 R.B.C.
8-29	190/120	171	130.2	+0.5	+2.0	+2.0	76		3+ Albumin Innum. R.B.C.
8-31	190/115	165		+1.0	+2.0	+2.0			4+ Albumin Innum. R.B.C.
9-6	150/95	153		—1.0	+1.5	+1.5			4+ Albumin Innum. R.B.C.
9-12	125/70	133	116.3	+0.5	+2.0	+2.0	48	48	2+ Albumin 0-4 R.B.C.
9-19	110/60	140	105.0	+1.0	+4.0	+3.0			1+ Albumin 1-4 R.B.C.
9-24	130/85	142					54	42	2+ Albumin 0-5 R.B.C.

Goldring[5] has stated that the usual duration of the acute stage is from two to ten weeks. In his opinion, at all ages, 40 per cent go on to complete recovery, 30 per cent become latent, and 25 per cent progress to the chronic stage. About 5 per cent die during the acute attack. Longcope[1] followed twenty-nine adult patients with acute nephritis for periods varying from eight months to seven years. Forty-one per cent he classified as "well", 14 per cent as "latent", and 45 per cent as "chronic". Van Slyke and his group[10] published a careful study on twenty-three patients with acute nephritis. Five were classified as "healed", eleven as "latent", five as "acute chronic", and three others passed directly from the acute to

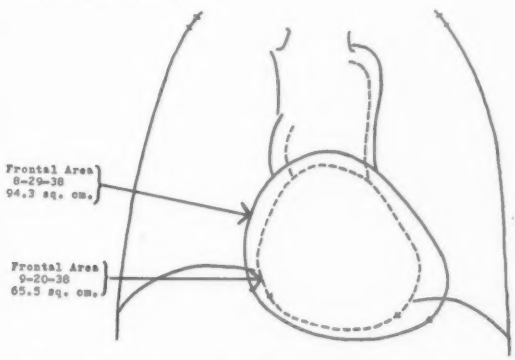


the "terminal stage". However, four of the patients classified as latent were followed for less than six months and six from one to two years. They concluded that the best indications of developing chronicity were a lowering of the serum protein during the acute attack and the failure of renal function, as measured by the urea clearance test, to improve within four months after the acute attack. Fishberg[4] and Newberg[11] state that the incidence of chronicity is higher in older individuals and is lower following scarlet fever than it is after other infections. Richter[2] has reported a detailed analysis of 100 patients over twelve years of age seen at the Peter Bent Brigham Hospital. Five per cent died from nephritis during the acute attack. Of the seventy-seven patients who were observed over a period of one to nineteen years, averaging 8.7 years, sixty-two were apparently cured, and fifteen, about 20 per cent, were chronic. In all except four of these sixty-two classified as cured the urine became albumin-free during the first year, while in only two of the fifteen developing chronic nephritis did it become negative during this time. In other words, if albuminuria was present after the first year the chances of the patient having the chronic disease were about 4:1.

The late results and the time of each examination of the patients in this series is shown in Table V. Of the twenty-seven patients observed for more than one year, two had albuminuria, three had hypertension, and one had both hypertension and albuminuria. Thus seven, or about 25 per cent, of this series have some persisting abnormality from two to nine years after the acute attack.

FIG. I

CASE # 1 (D.S. #142348)



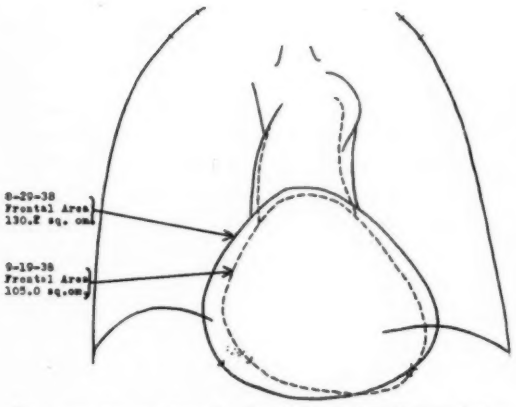
The importance of the course during the first year as an index to the subsequent course of the disease is evident in this table. Of the seven patients found to have abnormal urine or blood pressure at the end of several years, only one was considered normal at the end of six months. Of the fourteen who were known to be negative near the end of the first year, only one has later shown an abnormal urine and blood pressure.

Case No. 1 is very instructive. This patient recovered from an attack of acute nephritis at five years of age and examination was entirely negative five years later; during the sixth year she developed albuminuria and in the seventh year, when she was twelve years of age, she passed through what might easily have been mistaken for an attack of acute

glomerulonephritis, having hematuria, albuminuria, and hypertension, all of which disappeared in a few months. Her blood pressure and urine have been entirely normal during the past three years since her second episode. This patient illustrates the difficulty

FIG. II

CASE No. 2 (M.C.#101204)



that sometimes arises in the differential diagnosis between acute glomerulonephritis and an exacerbation of a latent or chronic nephritis. In some instances this question is impossible to decide unless the patient has been observed for several years preceding and following the attack.

Case No. 33 was an example of the result that Addis,[9] Van Slyke,[10] and others consider as passing directly from the acute stage into the terminal stage. This patient, a seventeen-year-old white boy, developed acute nephritis following an attack of scarlet fever, the renal lesion showed no tendency to heal, he gradually failed and died at home about four months after the onset of the acute nephritis.

We think Case No. 2 and Case No. 24 best illustrate the healing that may occur in acute nephritis, because both of these patients have passed through entirely normal pregnancies since the attack of acute nephritis.

Because of the cardiac dilatation that sometimes occurs during the acute attack and the previously mentioned work suggesting that the heart may be directly damaged at this time, we have studied the orthodiagrams and electrocardiograms of twenty patients from one to nine years afterwards. The average time elapsed since the acute attack was six years. The results of these examinations and the blood pressures and urinary findings are shown in Table VI.

TABLE VI

OBSERVATIONS OF TWENTY PATIENTS FROM ONE TO NINE YEARS AFTER AN ATTACK OF ACUTE NEPHRITIS

CASE No.	AGE (At Time of Initial Attack)	SEX	RACE	ORTHODIAGRAM FRONTAL AREA (sq. cm.) *PREDICTED	MEASURED	C/T RATIO (%)	ECG. LEADS I, II, III	B. P. (mm. Hg.)	URINE EXAM. (Casual Specimen)	TIME ELAPSED SINCE ACUTE ATTACK (Yrs.)	VASCULAR ABNORMALITIES	CASE No.
1	8	F	W	92.0	77.9	48.0	Normal	115/80	Negative	9.0	0	1
2	13	M	W	130.0	108.6	40.5	Normal	130/85	Negative	9.0	0	2
3	10	F	W	93.0	68.6	42.2	Normal	120/80		9.0	0	3
4	12	M	W	117.0	108.1	40.5	Normal	130/80	Negative	9.0	0	4
5	4	F	W	79.0	73.7	40.9	Normal	110/75	Negative	8.5	0	5
6	11	M	W	105.0	102.8	50.4	Normal	104/74	Negative	8.0	0	6
7	8	M	W	107.0	81.4	45.0	Normal	130/80	Negative	7.5	0	7
8	25	M	W	119.0	115.6	46.0	Normal	150/92 146/94	Negative	7.0	+	8
9	11	F	W	98.0	82.5	41.3	Normal	140/60	Negative	7.0	0	9
10	7	F	W	92.0	93.8	49.7	Normal	150/105 142/102	Sl. Tr. Albumin	7.0	+	10
11	9	M	W	101.0	103.2	44.6	Normal	130/90	Negative	6.0	0	11
12	2	M	W	63.0	55.7	46.1	Normal	80/60	Negative	6.0	0	12
13	46	F	W	108.0	99.0	56.9	Normal	204/124	Negative	6.0	+	13
14	11	M	W	109.0	80.8	34.4	Normal	118/78	Negative	5.5	0	14
15	6	M	W	72.6	64.4	49.4	Normal	96/76	Negative	5.5	0	15
16	11	M	C	91.0	105.5	48.8	Normal	130/80 125/82	Negative	5.0	+	16
17	5	F	W	55.0	60.8	56.6	Normal	120/75	Negative	3.0	0	17
18	17	M	C	106.0	108.5	47.8	Normal	90/60	Negative	2.0	0	18
19	24	M	C	101.0	98.1	45.0	Normal	134/82 130/82	Negative	1.3	0	19
20	9	F	W	66.0	59.2	54.7	Normal	95/60	Negative	1.0	0	20

*The predicted frontal areas are obtained from the height and weight nomogram compiled by Kurtz. (Chester M. Kurtz: "Orthodiascopy". The Macmillan Company, New York, 1937.)

The electrocardiogram was considered to be within normal limits in every instance. Abnormal blood pressures were found in three instances, once associated with albuminuria, but in each instance the orthodiagraphic study revealed the size of the heart to be within normal limits. Perhaps the most interesting finding in this study is Case No. 16. Five years after an attack of acute nephritis this sixteen-year-old colored boy was found to have a definitely enlarged heart with a frontal area of + 16 per cent with no symptoms, a normal blood pressure, and a negative urine with a specific gravity of 1.022 on a casual specimen. He gave no history suggesting any past rheumatic infection and there was no evidence of a valvular lesion on physical examination or on fluoroscopy. It is possible that this cardiac enlargement is the only demonstrable evidence of an unhealed renal lesion and only continued study will give the final answer. However, it must be borne in mind that this may represent residual cardiac damage from a healed attack of acute nephritis and that this may explain some of the puzzling instances of cardiac enlargement without evidence of a congenital defect, rheumatic fever, hypertension, or lues. Obviously, a definite conclusion on this point cannot be drawn at present.

TREATMENT

As is true of many other diseases in medicine, the number of different therapeutic methods and régimes that have been advanced in the treatment of acute nephritis is adequate evidence that an entirely satisfactory one is not yet available. The fact that the mortality rate during the acute attack is around 5 to 7 per cent in practically all the reported series suggests that the therapeutic measures in present use do not alter the outcome of the acute attack with the possible exception of the emergency measures used in the treatment of pulmonary edema and convulsions. There are but few studies that give any information regarding the possible effect of early treatment on the incidence of the late sequelae.

Probably the most important general features in the treatment of acute nephritis are the duration of bed rest, the amount of fluids, the diet, the removal of foci.

The actual length of time the patient should be kept in bed is difficult to decide, especially when economic and personality factors play an important part. Any disease that leaves over 20 per cent of its victims with some residual damage must be considered a serious disease. The whole future life of the individual must be considered and not the few weeks or months during and after the acute attack. We must remember that we are dealing with a disease that sometimes heals so completely that years later no evidence of it can be found at autopsy, and that in some instances this healing takes place only after several years. Nevertheless, a good proportion of these patients, especially adults, develop late changes for which treatment has little to offer. It seems apparent that what efforts we make to alter the course of the disease must be made early. Perhaps the future interest of the patient would best be served by adopting some of the philosophy of the treatment of rheumatic fever and insisting on a "radical" rest régime during the acute attack, keeping the patient inactive until all signs of activity, including the urine examination, have entirely cleared up or definitely become chronic. The fact that some patients have negative urine while in bed and develop both red blood cells and albumin after resuming activity indicates that rest actually does have a sparing effect on the kidney. The knowledge that a good many of these patients apparently recover completely after a short convalescence and that others die without ever leaving their beds is not a valid reason against a longer period of inactivity. The group with residual damage is strong evidence of the failure of our treatment and it is toward reducing the size of this group that our efforts should be directed.

The amount of fluid that should be given these patients is a matter about which there has been much discussion and little agreement. It is a matter in which one cannot follow a fixed routine. As Fishberg[4] points out, the glomerular loops are largely blocked and it is difficult to see how a large fluid intake can cause diuresis through such glomeruli. Siebeck[12] has shown that the ingestion of 500 to 1,000 cc. of water results in hydremia lasting for more than seven hours but rarely increases urinary output when this is severely reduced. Repeated experiments of this nature caused an increase of the edema. In normal individuals the same amount of fluid caused a transient hydremia and prompt diuresis occurred. From these considerations, then, it would seem logical to give liquid about equal in amount to the urinary output during the period when the output is diminished, as long as the specific gravity of the urine is high. It is probably ad-

visable to give an additional 800 cc. for insensible water loss. However, if the specific gravity of the urine is low, urinary volume is reduced, and a retention uremia seems to be developing, it is justifiable to attempt to increase the output by giving up to 2,000 cc. of fluid a day to an adult, even when edema is present. In view of the evidence of cardiac involvement previously mentioned one must consider the possible advantages to be gained from a large amount of fluid and its possible undesirable effects, especially if dyspnea is present, for the danger of pulmonary edema is a real one.

A discussion of the diet the patient is to have is of no value unless one considers what the patient is able to take, for many of these ill patients are unwilling and unable to take any food. Farr and Smadel[13] have studied the effect of diet on the course of nephrotoxic nephritis in rats and showed conclusively that after the first month the course of this experimental nephritis was markedly and adversely affected by diets containing 18 per cent and 40 per cent protein as compared to a diet containing only 5 per cent protein. However, it must be remembered that hematuria is not a feature of this nephrotoxic nephritis, that the diets of rats and man are hard to compare, and that Keutmann and McCann[14] could demonstrate no adverse effects in human beings with nephritis when they fed the calculated maintenance amount of protein. The effect of diet on the more obscure late results is difficult to determine. Provided the preceding illness has not been an exhausting one, caloric intake is not of prime importance for a week or ten days. In view of the fact that protein is not essential for a short time and the end products of its metabolism are excreted by the kidney it would seem advisable, and certainly not harmful, to eliminate this from the diet for a short time. The diet during the early part of the attack should consist almost entirely of fat and carbohydrate for the metabolic products of these substances put little strain on the kidney and they also spare the body protein to a great extent. Fishberg[4] recommends that the diet be poor in salt, not only because salt may increase the edema but also because it must be eliminated through the kidneys. As the patient improves the diet should be gradually increased and the calculated protein requirements should be met when the evidence of nitrogen retention disappears. No useful purpose is accomplished by long restriction of protein simply because the urine is not entirely clear, and edema due to hypoproteinemia may arise in a surprisingly short period of time.

The discussion of the treatment of foci of infection is intimately associated with theories regarding the etiology of acute nephritis, an aspect of the subject which we do not wish to discuss. The main questions are how radical one should be in attacking tonsils, teeth, and sinuses, and at what time this should be done. Longcope[1] studied twenty-nine patients for periods varying from eight months to seven years with special reference to cultures obtained from the throat and sinuses. Eleven of the thirteen "progressive" cases had continuous and obvious infection of the paranasal sinuses or throat from which cultures were consistently or frequently positive for hemolytic streptococci. Only four of the sixteen classified as "well" and "latent" had similar findings. Winkenwerder, McLeod, and Baker[15] studied the relationship of hemolytic streptococci to nephritis in seventy-eight patients from one to eight years after the acute attack. In their series streptococcic infections rarely caused relapses in the patients that recovered, whereas persisting chronic infections were characteristic of the "progressive" stage, even in the beginning. It is well known that acute nephritis may follow a sore throat that occurs years after satisfactory tonsillectomy has been performed. Such was the case in five patients in our series. In spite of the fact that the removal and treatment of foci of infection may not result in improvement, and the importance of focal infection is probably exaggerated in a good many diseases, the treatment of definitely infected foci should be considered part of the proper treatment of acute nephritis.

The danger of causing exacerbation of the disease, major or minor, by removing foci should be a well recognized possibility. Decision as to the optimum time to treat the focus is difficult, but there is general agreement that it should not be done during the acute attack. If we wait until all signs of activity have disappeared we may only treat the patients that do not need this aspect of the treatment. The tonsils were considered a focus in eleven of our patients who had been followed for one to ten years. In two of these tonsillectomy was performed one month after onset, the urine being clear at that time, and in one of these there was an immediate mild exacerbation of the nephritis. In nine others tonsillectomy was performed from three to six months after onset and although four had persisting urine abnor-

malities at the time of operation, none had any exacerbation of the nephritis. We believe that removal of foci should be delayed until about the fourth month; if the signs of activity have disappeared, there is practically no danger attached to the procedure. If definite improvement in renal function has not occurred by that time it is likely that the process will not heal completely and nothing will be gained by further delay. If steady but slow improvement is occurring at the end of four months it is probably advisable to delay longer, especially if, as is true in many instances, the importance of the focus is questionable.

The hypertensive encephalopathy of acute nephritis, seen most often in children, may be temporarily relieved by the intramuscular injection of magnesium sulphate (0.2 to 0.4 cc. of 25 per cent solution per kilo body weight).[16] This method for the relief of convulsions associated with increasing edema, hypertension, headache and drowsiness, has impressed many of our pediatricians favorably. No satisfactory explanation for the action of magnesium sulphate has been offered. One cannot help but wonder if the condition leading to the apparent necessity for magnesium sulphate may not be avoided by the judicious limitation of fluids early in the course of the disease.

SUMMARY

We have reviewed the records of eighty-two patients with acute glomerulonephritis admitted to the University of Virginia Hospital during the past ten years. Special studies have been performed on twenty of these patients from one to ten years after the acute attack. These studies demonstrate the advisability of prolonged observation in every case of acute glomerulonephritis. We believe the importance of absolute rest during the period of active disturbance in the kidney has been underestimated.

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DISCUSSION

DR. J. EDWIN WOOD, JR., University: Adequate rest in acute glomerulonephritis has been underemphasized. The value of a suitable rest régime during the active periods of tuberculosis and rheumatic fever has been well established. It would seem to be equally true that during the activity of acute glomerulonephritis added work for the kidney occasioned by over activity also produces damage that might not occur otherwise. This conception is not well known and often cases of acute glomerulonephritis are allowed to be up and around when there are flagrant signs of inflammation in the kidney.

As regards the question of sulfanilamide there is, of course, no direct evidence. If we accept the present theory of the relation of the hemolytic streptococcus to acute nephritis, then it would seem that the administration of sulfanilamide at the time of nephritis would be too late. Theoretically, if sulfanilamide could be given two weeks

before the onset of the disease during the streptococcus event, then possibly some cases of acute nephritis could be avoided. However, as we have no way of knowing just which case with a streptococcus infection may develop nephritis this would be an impractical method of prevention.

There can be no iron bound rule for the question of transfusion. I have been inclined to avoid this procedure during the acute inflammation of the kidney; as a matter of fact, anemia is seldom a disturbing event in acute nephritis but may become so later in the chronic stages.

I think Dr. Leavell brought out quite clearly the advisability of prolonged and careful follow-up of any case acute nephritis, not only from the standpoint of determining the question of activity but also the question of complicating cardiovascular disease.

DR. JAMES B. STONE, Richmond: I want to say just a word on the use of fluids. In the brief time the lantern slides were shown I could not correlate the age of the patients with the other material presented. Aldrich, in Chicago, has done more work and reported more data from his observations on nephritis in children than anyone else in this country. He has shown the great value of forcing fluids in children with nephritis. During the last ten or twelve years he has studied the results obtained in the Children's Memorial Hospital in Chicago according to the treatment used. In the early days they tried small amounts of fluids, dehydration, and hot packs. The mortality was almost one hundred per cent. A few years later they tried a moderate amount of fluids. During the last few years they have forced large amounts of fluid, and the mortality has dropped tremendously.

Aldrich maintains, and apparently has evidence to support his views, that the same thing which causes the kidney damage also affects the cerebral tissue. It is the absorbed toxin which affects both structures, and magnesium sulphate, by its dehydrating effect on the colloids of the brain, appears to have some effect in diminishing the cerebral edema that results from this toxemia. So the use of magnesium sulphate and forcing fluids, as a means of diluting the toxins, are the two points which he emphasizes. During the last year or two I have treated my cases along this line and have been much impressed with the good results obtained.

DR. WM. B. MCILWAINE, Petersburg: About ten years ago the pendulum swung from forcing fluids to not forcing fluids. Of course, most doctors swing with the pendulum, and at that time I stopped using my old remedy which I had used for some years previous, which was cream of tartar and lemonade. I have come to the conclusion that the forcing of fruit juices is of definite value in the treatment of nephritis—not the forcing of water by itself; and I am wondering whether the good results gotten from the forcing of fruit juices may be from the action of vitamin C. While I realized that the forcing of water did not give as good results as the forcing of fruit juices, yet I did not know the reason until recently, when it has been brought out that vitamin C has a definite diuretic action. I want to ask the doctors whether it is possible for the forcing of fruit juices to be of value largely on account of the vitamin C content rather than because of the fluid in the orange-juice mixture which we give.

I should like them to bring out one point in closing the discussion, and that is whether acute glomerulonephritis is brought on by any one organism. I have followed cases in the acute streptococcus group and have wondered if I were justified in using sulfanilamide in the treatment of acute glomerulonephritis.

I should appreciate it if they would take up those two points in the closing discussion.

DR. ————*: I have enjoyed the presentation very much, and I should like to hear a little more discussion in regard to the protein intake. It has been in the literature recently and for the last one or two years that in a case of nephritis it is an open question whether to restrict the protein, or whether to give a moderate amount, or give a high amount. Observers such as Mosenthal and others say that if you have a case which is spilling—say a cloud of albumin daily, then the protein intake is cut out or cut down away below that person's requirement, and there is this thought in mind, when the serum albumin and the serum proteins diminish in amount, if they go below the critical level for edema, the kidney is not going to be able to handle that fluid, and that fluid is going out into the tissues. With this point in mind, some men recommend that the protein intake be cut to an amount of forty or fifty grams a day; that will be sufficient to make up that albumin loss, but will not be sufficient to overload the kidney or to cause a great deal of nitrogen retention. I fully agree that the amount of protein intake is an individual problem in each one of these cases.

DR. ————*: Following these cases radiologically, I really picked up this discovery without any reference to the literature—how quickly an acute nephritis in a child will cause a cardiac enlargement.

Another point I should like to ask about is whether the use of high sugar concentrates would be indicated. And my third question is about the use of blood transfusions, both as a means of replacing protein and also as a source of easily assimilable sugar, and then to replace blood.

It looks to me as if in the method of treatment (and I do not mean to be cynical or funny) it is a question of whether you hit the bull's eye and write a circle around it or whether you draw a circle and then hit the bull's eye. There is really no treatment for nephritis, whether you give them salt or do not give them salt.

On these three points I should like to have enlightenment,—whether you give them salt; the question of giving digitalis in the early stages; and transfusion.

DR. LEAVELL, closing the discussion: In answer to the first question about the age of the patients who received magnesium sulphate, about half of them were admitted to the Pediatric Service because they were less than twelve years of age when the first attack occurred. It is the practice of the Pediatric Service at the University of Virginia Hospital to give magnesium sulphate and large

*Name not known.

amounts of fluid to all patients from the time of admission, and the pediatricians are very enthusiastic about the results of the treatment. This series is too small to draw any conclusions regarding the value of magnesium sulphate, but the results often seem better in children than in adults.

Our series is too small for one to draw any conclusions about the relation of age to prognosis. Seven of these patients in whom there were persisting abnormalities were under twelve years of age when they had their first attacks.

I think the point about forcing fruit juices is an excellent one. Of course, vitamin C acts on the capillaries, which is the point of most damage in acute nephritis; therefore, it seems logical and good practice to give fruit juices. Both the carbohydrate and vitamin C are helpful.

In deciding the amount of protein the patient should have, the work which Smadel and Farr have done on nephrotoxic nephritis in rats is interesting. They produced a nephritis in rats which was almost identical with the nephritis that is found in human beings, except that hematuria was not present. In feeding the rats different diets, they found the course of the disease the same for about a month, but after that time the rats on a higher protein diet showed evidence of greater renal damage than those on a low protein diet. The fact that the changes did not develop until after the rats had been on the diet for a month may be of some significance.

Dr. McCann studied the effect of protein on patients with renal lesions, giving them varying amounts of protein in the diet. He could demonstrate no adverse effect from giving them the maintenance amount of protein plus the amount excreted in the urine each day. These patients were studied for only about six months, so I suppose the question of protein has not been finally answered. I think we are on pretty safe ground if we eliminate it during the early part of the disease.

The question of serum protein level is an important one. Van Slyke and his group thought that two things are very important in estimating the prognosis: Lowering of the serum protein during the acute attack, and the failure of renal function to improve within four months after the acute attack. Our experience has been the same. Whether the serum proteins were low because of approaching chronicity, or whether low protein favored chronicity I do not know, but I suspect the protein changes are the result of the renal changes.

The amount of salt the diet should contain is discussed in the paper.

PARTIAL OCCLUSION OF SUPERIOR MESENTERIC ARTERY.*

JAMES A. GANNON, M.D., F.A.C.S.,
Washington, D. C.

An embolus is a foreign body or some undissolved material that is carried by the blood and impacted in any portion of the vascular system. The source of an embolism includes such lesions as septic processes, thrombophlebitis, vegetation of the cardiac valves, and arteriosclerosis.

"The superior mesenteric artery supplies the entire small intestine, the cecum, and ascending and transverse colon. It arises from the aorta just below the cæliac axis. It is covered at the origin by the splenic vein and by the pancreas, and passes between the pancreas and the transverse portion of the duodenum, crossing the front of this portion of the intestine, and descends between the layers of the mesentery to the right fossa" (Gray's Anatomy). The branch of the artery which supplies the colon is given off very early so that it is possible for an occlusion of the vessel to occur below where it is given off and affect only the small intestine. The occurrence of a embolus in the superior mesenteric artery is followed quickly by paralysis of the intestine, and, if the occlusion is complete, gangrene and peritonitis soon follows. Frequently an occlusion of one of the branches of the vessel is followed by a localized damage, which can be treated by resection of the part of the intestine affected. When the entire intestine is paralyzed, no operation can be done. Many doctors believe that obstruction of the mesenteric artery high enough to affect the entire small intestine is always fatal, and the purpose of this report is to again emphasize the old saying that "while there is life there is hope," and to pay my compliments to the Wangansteen tube.

One morning in August, 1938, a tobacco expert connected with the Government left his home in Virginia, and came to Washington on business. He stopped at the Burlington Hotel. He went to bed at his usual time. Very early in the morning he was awakened by abdominal pain and vomiting. This continued until daylight when he summoned medical help. He was sent to Emergency Hospital for observation. He was markedly worse by noon, and a

*Read before the Virginia, Maryland, and District of Columbia Medical Society, November 6, 1938.

leucocyte count showed the white cells to be 20,000. I saw him in consultation with his physician at this time. He was about forty years of age, and was lying on his back in bed in evident pain. His pulse was 120 and his temperature was 102. The abdomen was distended and tympanitic. There was no localized tenderness. He appeared to be quite ill. His history showed that he had suffered from indigestion and pain in the right lower quadrant for five years, and that he had been studied in several of the clinics of the South, and told that he had a chronic appendicitis. No one had suggested the removal of the appendix. The patient appeared to be suffering from acute appendicitis with peritonitis, but before operation a flat X-ray picture was made to rule out kidney stone and mechanical intestinal obstruction. No kidney stone was found, and the X-ray report indicated there was difficulty in the region of the cecum. The patient was sent to the operating room, a right para-rectus incision was made, and an adherent and inflamed appendix was removed. The cecum was normal in color and was not distended. Several omental adhesions were attached to the cecum and these were divided. The entire small intestine was distended and red in color. The distention stopped abruptly as the ileum entered the cecum. The fingers invaginated the ileac wall and pushed it through the ileocecal valve without restriction or difficulty. There were no intestinal adhesions and palpation of the other organs of the abdomen did not reveal abnormality. The veins of the mesentery were distended with blood which was not coagulated. The intestinal area involved was so great that the abdomen was closed without attempting to do anything further, and the patient was returned to bed. A Wangansteen tube was introduced and blood transfusions and intravenous glucose in salt solution were commenced. The distention was relieved somewhat, but the condition of the patient remained much the same when I called on him morning and evening for seven days. On the morning of the eighth day the nurse reported a bowel movement after an enema. This was repeated and later in the day the Wangansteen tube was clamped for a few hours and fluids were given by mouth. The tube was removed on the following day and soft diet commenced. There was no vomiting and no return of the other symptoms. The bowels continued to move each day and the food intake was increased. After another week the patient returned to his home with his wound well healed, and his alimentary physiology in working order. This was evidently a partial occlusion of the mesenteric artery of one week's duration. The inflamed appendix and the battle scarred cecum furnished the probable origin for the embolus. There were no heart murmurs present. The result was fortuitous, and the author does not claim any particular credit for the outcome of the case.

The Wangansteen tube is a valuable instrument and will save many lives. By syphoning the contents of the stomach and the regurgitation of the duodenum it prevents vomiting (which is exhausting) and allows gas and toxic materials to escape from the upper alimentary canal. It is useful in intestinal obstruction, and by reducing distention and allowing the patient to be properly prepared, it allows operation for mechanical obstruction to be performed in one stage.

This month's* *Surgery* carries an article which describes a case of perforated gastric ulcer in which the tube was used and by keeping the stomach empty the perforation healed without necessitating operation. Draining the upper alimentary tract depletes the body of sodium chloride and this should be made up for by saline intravenous injection.

1915 Biltmore Street, Northwest.

*November, 1938.

Correspondence

State Medicine Alias Social Security.

TO THE EDITOR:

This is a subject that is uppermost in the minds of every American doctor in the medical profession. For the first time in the history of our country the Federal government is making a supreme effort to project their political tentacles into one of the greatest of all professions—the medical profession. By this act they hope to subsidize the profession and bring them under the control of the Federal government operated by brain trusters and beaurocrats who will be totally ignorant of the need and requirements of the health and the sick of our people. When we look back over the past six years and see how our government has tried to regiment every occupation and business in our land, we are not surprised at the steps they are now taking to regiment the medi-

cal profession. The attempt on the part of the government to socialize medicine is purely a political set-up, designed for the purpose of controlling the profession and this will be done in a propagandic disguise of a great humanitarian act for aiding the poor and under-privileged class.

The patriotic and intelligent people of our country are getting wise to the propagandism that has been carried on during the past six years, which has been done for the sole purpose of regimenting our people into the channels of government control, and today through this process the government has a national debt of nearly fifty billions of dollars and is still piling up deficits. All the great nations of past history have gone down under debts and taxation. Please notice that Congress was recently asked for eight hundred and fifty million dollars to regiment the doctors and hospitals. Such colossal sums will eventually bankrupt any nation. We are now headed that way: this amount when added to the enormous grants to the Federal government already made, will not only regiment the medical profession, but every other profession and occupation, and will perpetuate the present regime in office indefinitely. When this is accomplished our country will be ripe for a dictator. If the patriotic citizens of our country do not wake up we will soon be in the same condition that Russia was just after the World War—then it will be too late.

The Dies Committee unearthed a host of termites. Now working from within—such as avowed atheist, communist, and a host of other isms that have gained entrance into our country by unlawful means—these are allowed to operate without any hindrance from our Federal government. If such conditions are allowed to continue, the foundation of our Constitutional government will soon be undermined.

We hear a great deal today about building up great armaments for fear that we will be attacked by some outside enemy: the American people should be more concerned about an attack by enemies within our own country, and this is done with the full knowledge and consent of some of our government officials.

In order that we might get a proper prospectus of socialized medicine, let us look at England and Germany, both of which countries have had socialized medicine for one or two decades. Prior to socialization of medicine in these two countries, both nations had a splendid health record with the average life period about equal to any other country. Since the adoption by these countries of socialized medicine, England is standing still while Germany's health record is falling. Both of these countries stood high in preventive medicine and Germany led the world in chemistry, but today both countries have declined, while America has forged ahead in preventive medicine, chemistry and other aids and today she leads the world in these sciences and arts with the average life lengthened longer than any other country, except New Zealand. One of the great problems for the American people to decide is: Shall we have government control of the medical profession which will be under the supervision of politically controlled beaurocrats, the medical profession to lose its independence and be governed by a politically controlled politician who has only to answer to his superiors who are totally ignorant of the real needs and requirements of the health and sickness of our people; or shall we continue as we are today with a profession that is going forward from a scientific standpoint, leading the world in medical science and lengthening the average life of our people to a higher standard than any other nation; or shall the American people lose that sympathetic contact with their family physician and exchange it for regimented paid government doctors who only answer to their superiors, and will not be any thing more than ward healers for their dear government? If this thing is consummated, we will find the mechanized dole service of the paid doctor eventually resolving itself into a highly propagandized service with wonderful reports made out especially to his superiors. When this happens, the now competent doctor who keeps himself abreast of the profession will be supplanted by the paid political doctor who has first to be loyal to his party, and second, if at all, to his patient. Then the average life of the American people will decline, preventive medicine will go out, and the American people will grow weaker as a nation.

The final analysis of this problem, together with numerous other serious questions, stands before the American people today and will very soon have to be settled. Will they sit complacently by and allow themselves to be regimented by a spurious and false propaganda, or will the American people stand for the right in this and other great national problems, and not allow that glorious emblem—the Stars and Stripes—to be pulled down from over our National Capitol and the capitols of forty-eight states, to be

replaced by the yellow rag of Communism or the red rag of Fascism? In the language of that wonderful patriot—"Forbid it Almighty God, forbid it", and may that National emblem that has always stood for liberty and constitutional government continue to wave over the greatest nation on earth—the land of the free and the home of the brave.

SIDNEY J. TABOR, M.D.

Portsmouth, Virginia.
March 6, 1939.

Lawyer-Doctor, Attention!

TO THE EDITOR:

I am being impressed with the number of professional men who hold degrees as Doctors of Medicine and who also have received degrees from accredited law schools and are admitted to practice before the several courts of their states and country.

An effort is being made to secure and list all persons who possess the rights to practice medicine and law and who hold unrevoked licenses to engage in these two professional activities. The information is not obtainable from medical or law directories.

An appeal is therefore being made that persons holding the rights to practice medicine and law send their name, address, and data pertaining to their education in medicine and law to the undersigned. It will be appreciated also if a statement is included as to whether full time is devoted either to law or to medicine or whether the person engages in the practices of both professions.

FREDERICK C. WARNSHUIS, M.D., *President,*
American Medico-Legal Association,
137 Newbury Street, Boston.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for February, 1939, compared with the same month in 1938, follows:

	1939	*1938*
Typhoid and paratyphoid fever	6	10
Diphtheria	54	76
Scarlet fever	169	156
Measles	570	2,045
Meningitis	3	15
Poliomyelitis	3	0
Rocky Mountain spotted fever	0	0
Typhus fever	1	0
Undulant fever	0	5
Tularemia	1	2

CRIPPLED CHILDREN'S ACTIVITIES

On June 30, 1938, there were 5,383 crippled children on the register in the central office of the State Health Department. It is interesting to note that the majority of cases of crippling among these children are the result of diseases that are wholly or partially preventable. In order of importance these are infantile paralysis, tuberculosis of the bones or joints, rickets, and injuries from avoidable accidents. The entire resources of the Department are utilized in a continuous fight against these and other preventable conditions. Intensive work is effectively carried on in counties which have full-time health departments. Counties without health departments are served by a small corps of nurses in the Crippled Children's Bureau.

Forty-five permanent diagnostic clinics are operated in the State by qualified orthopedic surgeons. During the period July 1, 1937, to June 30, 1938, 3,884 patients were examined at the clinics, representing an increase of 1,217 over the number examined in the previous year. The clinic service is statewide in scope; the 242 clinics conducted by the Department at forty-five regular clinic centers provide diagnostic facilities for all rural Virginia. The services of a physical therapist have been secured to assist in setting up treatment centers in conjunction with the clinics. She will be employed wherever the need is greatest, giving particular attention to the care and treatment of recent cases of infantile paralysis.

Hospitalization for indigent children under the age of sixteen is provided through a contract with the Hospital Division of the Medical College of Virginia and the University of Virginia Hospital. One hundred and fifty beds for white and colored children are available for orthopedic and plastic-surgery cases. A total of 43,638 days' hospital care was provided during the year.

A substantial sum is set aside in the budget of the Department for the purchase of orthopedic appliances, braces, special shoes, or other equipment for the care of the crippled child.

REPORT ON THE DIPHTHERIA IMMUNIZATION DRIVE

According to reports recently received by the Department seventeen counties have participated in the

cooperative plan instituted on January 4, 1939, by the physicians of the State and the departments of health and education to organize clinics for the administration of diphtheria toxoid.

The general interest and enthusiasm of the local communities has been extremely gratifying. Cooperation by local physicians and school officials has been marked. This has resulted in the extension of this essential protection to hundreds of infants and children who, but for this particular drive, might have been deprived of preventive treatment, at least for some time to come.

Records indicate that since the opening of this campaign sufficient amounts of diphtheria toxoid have been used to inoculate more than sixteen thousand individuals. This distribution, under the direction of the Department, was made possible because of the clinics organized under the present plan.

The counties thus far cooperating are Accomac, Amelia, Appomattox, Bedford, Bland, Campbell, Clarke, Culpeper, Cumberland, Fauquier, Fluvanna, Frederick, Giles, Goochland, Loudoun, Powhatan, and Smyth.

New Members

New members of the Medical Society of Virginia since the list published in the October 1938 issue of the MONTHLY are:

Dr. Robley Curtis Allison, Petersburg.
Dr. William Baynard Barton, Stonega
Dr. Joseph Bernstein, Arlington.
Dr. Joseph Rogers Blalock, Marion.
Dr. Paul Webster Bowden, Arlington.
Dr. Herman Harrison Braxton, Chase City.
Dr. Russell von Lehn Buxton, Newport News.
Dr. William Holmes Chapman, Suffolk.
Dr. William David Chase, McLean.
Dr. Challis Haddon Dawson, Suffolk.
Dr. Charles Welby Dorsey, Roanoke.
Dr. John Philip Eastham, Culpeper.
Dr. John Roland Ellison, Suffolk.
Dr. Herman Farber, Richmond.
Dr. John Edward Fissel, Jr., Newport News.
Dr. James Thomas Gill, Richmond.
Dr. James Martin Habel, Jr., Franklin.
Dr. Walter Glenn Hardy, Stanleytown.
Dr. William Allen Johns, Richmond.
Dr. Harold Mills Kelso, Pulaski.
Dr. Harold Wade Kinderman, Hampton.
Dr. Louis Xavier Kolipinski, Petersburg.
Dr. Byrd Stuart Leavell, Charlottesville.
Dr. Rector Sells LeGarde, Damascus.
Dr. Gershon John Levin, Norfolk.
Dr. Bernard Isaac Lidman, Norfolk.
Dr. Louis Lovenstein, Richmond.
Dr. Joseph Hawkins Low, King George.
Dr. Florence Iris Mahoney, Staunton.
Dr. William Lloyd Mason, Richmond.
Dr. Emmett Carlysle Matthews, Richmond.
Dr. John Hobart Reed, Richmond.
Dr. Wellford Claiborne Reed, Richmond.
Dr. Claude R. Robinson, Max Meadows.
Dr. Marion Thomas Rosser, Hillsville.
Dr. William Langley Sibley, Roanoke.
Dr. Charles D. Smith, Richmond.
Dr. Walton Herbert Springall, Gloucester.
Dr. William Lyons Taliaferro, Norfolk.
Dr. Elam Cooksey Toone, Jr., Richmond.
Dr. William Randolph Watkins, South Boston.
Dr. William Harvey Whitmore, Norfolk.
Dr. William Angle Young, Richmond.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Mid-Winter Board Meeting.

The Mid-Winter Meeting of the Executive Board of the Woman's Auxiliary to the Medical Society of Virginia was held on Wednesday, March 1, in the Founder's Room of the Academy of Medicine in Richmond. The meeting convened at 11:30 A.M. and was opened with a prayer by the President, Mrs. Hawes Campbell. Twenty members answered to Roll Call, and practically every organized Auxiliary in the State was represented at this meeting.

The Officers and Chairmen brought in interesting reports of the first half of the year's work, which indicated that the wheels of this organization are running along smoothly, and that each Chairman, and the workers under her, are actively engaged in their respective phases of the Auxiliary's work. Mrs. Campbell's splendid report gave evidence of the untiring effort and time which she has given not only as State President but as President of her local group as well.

Mrs. Roy R. Jones of Alexandria, Chairman of Exhibits, submitted to the Board her plans for the exhibit to the May Meeting of the American Medical Auxiliary in St. Louis, and her ingenious ideas were heartily approved. The exhibit which she is working up will be something very new and novel—a thing of real beauty. One very interesting aspect is that each local Exhibit Chairman is to have a hand in making this exhibit possible. The exhibit will again be on display at the Annual Meeting of the Virginia Auxiliary in Richmond next October, and it is believed that it will prove to be a great surprise and of sheer delight to all visitors attending the State Meeting.

Tentative plans were made for the Annual Meeting, and the speaker, whom the Auxiliary hopes to have address the group, was named.

Following the morning business session, the Richmond Auxiliary was hostess to the Board at a delicious luncheon in the Dining Room of the Academy. The Board is deeply appreciative of the efforts of Mrs. James K. Hall, President, and Mrs. Charles Preston Mangum, Chairman of the Richmond Auxiliary's Social Committee, and to the members of that Committee, Mrs. Gayle Crutchfield, Mrs. Angus Nichols, and Mrs. J. O. Fitzgerald for this delightful entertainment.

Dr. Karl S. Blackwell, President of the Richmond Academy of Medicine, was the guest speaker at the luncheon, and gave some interesting suggestions on "How the Doctor's Wife can be of help to her Husband and to the Medical Profession at large."

The purpose of the Mid-Winter Meeting is to bring about the exchange of ideas of the members of the Board and to make perfect the plans formulated at the previous Annual Meeting. This Session, which adjourned in the early afternoon, was a most satisfactory one in every respect and the members returned to their homes fired with enthusiasm to make this a Bigger and Better Auxiliary Year.

JANET WATKINS STONE,
(MRS. JAMES B. STONE)

Woman's Auxiliary to Norfolk County Society.

The regular meeting of this Auxiliary was held on March 6 in the Library of the Medical Arts Building, with Mrs. Millard Savage, President, presiding. It was reported that $426.03 was realized from the card party and fashion show held at the Town Club on January 31. Of this sum $365.00 will be used to maintain a patient for a year at the Tidewater Memorial Hospital; $10.00 was given to help to maintain a patient at Blue Ridge Sanatorium; and $25.00 to the tumor control clinic in Norfolk.

Plans to celebrate "Doctors' Day" in May were discussed, and it was tentatively decided to entertain the physicians at a joint meeting in May.

Mrs. Thomas Spessard was appointed chairman of a committee to dress a doll in costume to represent an outstanding local woman to be exhibited at the National Convention this spring. Dolls will be displayed from all the county auxiliaries in Virginia.

A nominating committee, composed of Mrs. Thomas Vorbrinck, chairman, and Mrs. C. J. Devine, Mrs. T. Elmore Jones, and Mrs. J. W. Anderson, was appointed to bring a slate of officers to the next meeting of the Auxiliary.

(MRS. BROCK D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

Auxiliary to Lynchburg Academy.

The following were recently appointed as officers of the Lynchburg Woman's Auxiliary: President, Mrs. Edwin Harper; vice-president, Mrs. John Wyatt Davis; treasurer, Mrs. S. E. Oglesby; secretary, Mrs. Bernard Kyle; chairman of program, Mrs. R. D. Caldwell; and of publicity, Mrs. James Gorman.

A. M. A. Radio "Health" Broadcasts.

April 5—*Don't Believe Everything.* Fallacies and popular beliefs that are not true and that influence behavior in a manner detrimental to health.

April 12—*Learning to Live.* Elements of mental hygiene; getting along with people; adjustment to environment.

April 19—*Accidents Don't Just Happen.* Accidents in the home and on the highway and ways to avoid them.

April 26—*What is a Doctor?* The characteristics of a reputable physician as distinguished from cultists, quacks, fakers, faddists or exploits.

The National Convention.

The annual meeting of the Woman's Auxiliary to the American Medical Association is to be held in St. Louis, May 15-19. Its sessions are always interesting and it is pleasant to come in contact with women from other states who are doing their part to help the medical profession. Members of all local auxiliaries are invited and urged to attend.

Proceedings of the Council of the Medical Society of Virginia

The Council of the Medical Society of Virginia held its winter meeting at the Society's office on Thursday, February 16, 1939, at 1:00 P. M., with the president, Dr. Alex. F. Robertson, Jr., of Staunton, presiding. Others in attendance were: Dr. Hugh H. Trout, president-elect; Drs. Julian L. Rawls, C. E. Martin, W. C. Akers, John Hundley, Jr., C. O. Dearmont, and J. E. Knight, councilors; Drs. P. W. Miles and S. B. Moore, vice-presidents; Dr. I. C. Riggin, State Health Commissioner; Dr. E. P. Lehman; and the secretary.

There being no objection, the president dispensed with the reading of the minutes of the last meeting of the Council, published in the November issue of the MONTHLY, pages 694-696.

A summary of the financial condition of the Society, showing affairs in good shape, was received. Following this, Dr. Robertson said he would like to have Dr. Roshier Miller and Dr. C. E. Martin continue as the committee to prepare the budget for the next annual meeting.

It was moved that the report on the Maternal Welfare Committee for the year 1938 be received and filed. This was received too late to be published with other reports but was printed in the December, 1938, MONTHLY, page 766.

The secretary stated that reports from a number of committees showed that they were very active, but only one seemed to require action by the Council at this time—the Maternal Welfare Committee would like an appropriation of $10.00 or as much thereof as needed for the purpose of carrying out some special plans. It was moved by Dr. Rawls, and seconded, that this be allowed.

Dr. Robertson told of a special meeting held January 11th, to which he had called members of the Advisory Committee to the State Health Department, Dr. Walter B. Martin, chairman of the Medical Economics Committee, Dr. H. H. Trout, president-elect, Dr. Riggin, State Health Commissioner, and several others, for the purpose of conferring on the various trends in relief work and the imminence of legislation relating to health matters. It was thought wise to have such a meeting at that time as it seemed likely Congress would make an appropriation for medical relief and it was felt the Society should be prepared to act in any emergency. Those attending the meeting strongly favored having the State Health Department administer any funds which might be appropriated by Congress for public health or other medical needs, and reaffirmed the position taken by the House of Delegates at its last meeting, as expressed with the following resolution:

WHEREAS there is prospect of grants of State and Federal funds for the development and extension of certain public health activities and other medical needs, and

WHEREAS these funds should be administered and distributed in accordance with certain principles laid down by this body.

THEREFORE, BE IT RESOLVED, by the House of Delegates of the Medical Society of Virginia, assembled in Danville, Va., this 5th day of October, 1938, that we believe the Health Department of Virginia is the proper agency to receive and distribute these funds, and

BE IT FURTHER RESOLVED, that we set up a committee of five from the Medical Society of Virginia to act as an advisory committee to the State Department of Health to the end that the best interest of the people of the State may be served in the distribution and administration of such funds.

In a discussion of the National Health Program, it was felt that money would be allotted states according to their way of meeting appropriations; that some states would probably have funds administered by the Public Welfare Departments in which case lay groups would be in charge; that Congress would allow as much latitude as possible and would not write in regulations for each State. Dr. Robertson said there was no set-up in the Society to handle this matter, but he felt they should try to get it in the hands of the State Health Department and that the Advisory Committee to the Health Department would help in any way possible.

Dr. Hundley said the recommendations were similar to those of the American Public Health Association to the Technical Committee on Medical Care, and read a paragraph from these recommending that the state departments of health should be made administratively responsible for all provisions of the National Health Program which may be enacted into law.

Dr. Knight offered a motion that the Council should go on record as favoring the handling of any funds for a State health program by the State Health Department, if and when they come. This was adopted with a recommendation that the Advisory Committee to the State Health Department and Dr. Riggin work out a suitable arrangement to present to the next Legislature.

Dr. Hundley felt the Council should also go on record as endorsing the recommendations made by the American Public Health Association concerning the National Health Program. This, put in the form of a motion, was adopted.

Dr. Robertson said that at the Danville meeting the House of Delegates endorsed the work of the Women's Field Army of the American Society for the Control of Cancer and also the Virginia Cancer Foundation and, upon request of Dr. Clarkson, director of the Foundation, he later appointed an advisory committee to the Cancer Foundation. Recently, he had talked with Dr. E. P. Lehman, who has succeeded Dr. J. Shelton Horsley as chairman of the Virginia Section of the American Society for the Control of Cancer, and others, and found there was

much dissension and confusion about the work of these organizations and he felt better results would be obtained if they were united. The purpose of the Women's Field Army is educational and that of the Foundation is for the care of indigent patients. In the interest of unification of the cancer program in Virginia, he was, therefore, appointing a committee to be known as the Cancer Committee of the Medical Society of Virginia, this to absorb the personnel and duties of the Advisory Committee to the Cancer Foundation. The new committee is composed of: Dr. E. P. Lehman, chairman, Dr. I. C. Riggin, Dr. I. A. Bigger, Dr. Fred Hodges, Dr. R. L. Payne, Dr. R. P. Bell, and Dr. I. C. Harrison, with Dr. Trout and Dr. Robertson, as *ex officio* members. The duty of this committee is to act in an advisory capacity upon all cancer activities in Virginia.

Upon request, Dr. Lehman then presented the following report:

To the Council of the Medical Society of Virginia:

At the request of the Executive Committee of the Women's Field Army representing the American Society for the Control of Cancer in the State of Virginia, your president has appointed a Cancer Committee of the State Society consisting of the following members: Dr. Edwin P. Lehman, chairman, Dr. Richard P. Bell, Dr. Isaac A. Bigger, Dr. Isaac C. Harrison, Dr. Fred M. Hodges, Dr. Robert L. Payne, Dr. Irl C. Riggin, and *ex officio,* Dr. Alex. Robertson, Jr., and Dr. Hugh H. Trout. These men are the personnel of the Executive Committee of the Women's Field Army, and of the Advisory Committee of the State Society of the Virginia Cancer Foundation, previously appointed by your President at the request of the latter organization.

It is the aim of this Committee to represent the profession of the State in all cancer control activities within the State. Specifically, its duties and program will consist of the following:

(1) To attempt through the Executive Committee of the Women's Field Army to unify all activities in the control of cancer within the State.

(2) To act in an advisory capacity to the Executive Committee of the Women's Field Army and to any other organizations interested in the control of cancer in Virginia.

(3) To sponsor the appointment of local cancer committees in each component society of the Medical Society of Virginia.

(4) To certify treatment centers for cancer throughout the State under provisions of previously announced qualifications in equipment and personnel, such centers to be available for the expenditure of funds raised by the Women's Field Army or the Virginia Cancer Foundation in the care of indigent cancer patients.

It is felt by your Committee that one reason for the lack of real success in earlier efforts directed towards the control of cancer in Virginia has been the absence of active cooperation by the State Society. The profession of the State carries very directly the responsibility for the control of cancer. Your Committee, acting in conjunction with the thoroughly established and successful American Society for the Control of Cancer, must necessarily further this important object, so real in the experience of every doctor.

A resolution supporting the activities of this Committee is requested from the Council.

Respectfully submitted,
EDWIN P. LEHMAN, M. D.,
Chairman, Cancer Committee,
Medical Society of Virginia.

Dr. Lehman explained that the set-up proposed for Virginia is similar to that already working in Maine, the Women's Field Army being in charge of the educational program and the Foundation being for the purpose of securing funds for treatment of indigent patients. Of the money raised from memberships, thirty per cent goes to the National Association and seventy per cent is for use in the State. If the membership is increased to 20,000, however, only ten per cent will go out of the State.

A motion was made, seconded and adopted, endorsing the program of the Cancer Committee of the Society, as outlined by Dr. Lehman.

Dr. Robertson stated that the secretary had advised him that the expense accounts of guests to the Danville meeting had amounted to nearly $120.00 instead of the $60.00 allowed in the budget, and he had instructed her to pay these. A motion was made and adopted that the payment of this additional amount be approved.

In a discussion of this feature of the budget, it was felt that $60.00 was a very small amount to allow for expenses of guests, and Dr. Knight recommended that an amount up to $200.00, if necessary, be allowed for expenses of invited guests to the annual meetings. This was approved.

The secretary was asked to read the following statement from Mr. Richmond Maury, president of the William Byrd Press, in regard to the first volume of *Medicine in Virginia,* the publication of which was sponsored by the Society:

Jules Chodax of the Southern Book Company, 122 West Franklin Street, Baltimore, Maryland, offered 60¢ a copy for approximately 600 copies of MEDICINE IN VIRGINIA IN THE SEVENTEENTH CENTURY in flat sheet form and approximately 425 copies bound, to be paid for in cash at our door on delivery. I explained to you that we were not under any financial pressure that would make this transaction desirable if it were not desirable because of other considerations. We have sold and collected for 419 copies of the edition. Our contract with the Medical Society of Virginia provides that after 750 copies are sold we begin to pay a royalty to the Society of 50¢ a copy.

I stated that we had approximately $200 invested in the book, exclusive of any consideration of our interest in the investment or storage charge. In view of this, it was my suggestion that if the Medical Society of Virginia approved of this sale the William Byrd Press be paid this $200 and the remaining $400 be split evenly between the Medical Society of Virginia and the William Byrd Press.

I made it clear to Dr. Blanton and I would like to repeat to you that we do not feel any consideration whatever should be given, in considering this sale, to the fact that the venture thus far has not been profitable to the William Byrd Press.

It was felt it might not be wise for the Society to dispose of its rights in this book but Dr. Rawls did not feel that the publishers should suffer a loss by the fact that sales had been slower than expected and thought it might be well to pay them the amount of about $200.00 representing the remainder of their investment in the volume, the receipts from future sales to be divided between the Society and the publishers. Dr. Martin moved that the president appoint a committee to sit in with Dr. Wyndham Blanton, the author, to decide promptly in regard to the sale of these books, the committee to have power to act. This was seconded and adopted, whereupon the president

appointed Dr. Roshier Miller to confer with Dr. Blanton on this subject.

Dates for the seventieth annual meeting of the Society in Richmond were set as October 3, 4, and 5, 1939, as this seemed the time most suitable to the local committee and for a speaker selected by the president.

Just at adjournment, word came of the death of Dr. J. C. Flippin, an ex-president, and a telegram was ordered to be sent Mrs. Flippin, expressing sympathy and the sense of loss felt by the Society in his death. Dr. Robertson also appointed a committee composed of Drs. Trout, Rawls, and Dearmont to prepare resolutions on his death.

AGNES V. EDWARDS,
Secretary.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Eli Lilly & Co.

Ampules Metycaine 2 per cent, 30 cc., in rubber stoppered vials.

Mead Johnson & Co.

Mead's Nicotinic Acid Tablets, 20 mg.

The Upjohn Co.

Solution Procaine Hydrochloride 2 per cent, 30 cc. vials.

Solution Procaine Hydrochloride ½ per cent with Epinephrine, 5 cc.

Ampoule Solution Procaine Hydrochloride 2 per cent with Epinephrine, 1 cc.

Ampoule Solution Procaine Hydrochloride 2 per cent with Epinephrine, 3 cc.

Solution Procaine Hydrochloride 1 per cent with Epinephrine, 30 cc. vials.

Solution Procaine Hydrochloride 2 per cent with Epinephrine, 30 cc. vials.

Propaganda for Reform

Recent Developments in the Treatment of Undulent Fever.—The increased recognition and incidence of undulant fever has fortunately been associated with new and improved methods of treating this disease, in both its acute and its chronic form. Vaccines have been employed for about ten years, in many instances with apparent success. Convalescent serum and transfusion with whole blood have also been reported as sometimes successful in the treatment of the disease. During the past year favorable reports of the treatment of undulant fever with sulfanilamide or its compounds have rapidly accumulated. From the information available it seems likely that sulfanilamide in rather large doses is necessary but that at least in some resistant cases the results are comparable, if not superior, to any other form of treatment of undulant fever thus far proposed. Successful results have also been claimed for physically induced hyperpyrexia treatments, and the intravenous administration of neoarsphenamine. Although a decision as to the value of any method of treatment in undulant fever is difficult because of the alternation of febrile periods and afebrile pauses, the available methods of therapy are such as to allow the disease to be met with a much more powerful therapeutic armamentarium than existed a few years ago. (*J. A. M. A.*, November 5, 1938, p. 1769.)

Mode of Action of Sulfanilamide.—Apparently sulfanilamide possesses a specific chemotherapeutic effect on the beta-hemolytic streptococcus; it is of low toxicity, is easily administered, is quickly absorbed and is more effective in vivo than in vitro. The results obtained in the treatment of puerperal sepsis and in hemolytic streptococcus meningitis are sufficiently dramatic to warrant the enthusiasm aroused by this new chemotherapeutic agent. In a recent communication, Long and Bliss (Ann. Surg., 108:808, November, 1938) analyze toxic manifestations which have occurred during the course of treatment with sulfanilamide in 335 cases at the Johns Hopkins Hospital. The most common toxic effects manifested were dizziness, headache, a loss of ability to concentrate, anorexia, nausea and, in some instances, vomiting. Cyanosis of varying degrees was almost constant. This is said by some observers to be due to sulfhemoglobinemia, by others to methemoglobinemia. Clinical acidosis as evidenced by combination of hypernoia and a lowered carbon dioxide combining power has been noted in 3 per cent of the cases. The most serious toxic manifestations are those associated with the blood or hematopoietic system. The mechanism of this type of anemia is not clearly understood, but it would seem to be the result of an idiosyncrasy toward the drug. Sulfanilamide is a potent chemotherapeutic agent for combating certain types of invasive bacterial disease. The precise mechanism of its action on bacteria, as well as its toxic effects, have not been clearly elucidated. Lockwood (Ann. Surg., 108:801, November, 1938) demonstrated that the concentration of the drug in the amount of 10 mg. per hundred cubic centimeters of whole blood prevented the multiplication of young virulent streptococci in test tube experiments. Lockwood and his colleagues (*The Journal*, 111:2259, December 17, 1938) similarly conclude that the striking effect of sulfanilamide is a depression of the invasive properties of the organism. The optimum level for treatment in severe cases seems to lie between 5 and 10 mg. per hundred cubic centimeters of blood. Sulfanilamide induces a physio-chemical alteration in the antigenic structure of hemolytic streptococci which decreases the invasive capacity of virulence of the bacteria. (*J. A. M. A.*, December 17, 1938, p. 2304.)

Sulfanilamide and Bacteriostasis.—In a recent report on the mechanism of action of sulfanilamide on bacterial infections, Osgood and Powell (Proc. Soc. Exper. Biol. & Med., 39:37, October, 1938) found that sulfanilamide in concentrations of 1:1,000 or less did not inactivate in vitro significant amounts of the hemotoxins of the beta-hemolytic streptococcus, hemolytic Staphylococcus aureus, Clostridium oedematis-maligni, Clostridium tetani or Baccilus perfringens. Neither did sulfanilamide therapy significantly affect the course of intoxication in guinea pigs injected with as little as one minimal lethal dose of diphtheric or tetanus toxin. Maegraith and Vollum

(Brit. M. J., 2:985, November 12, 1938) have recently investigated the bacteriostatic properties of three sulfanilamide derivatives using Staphylococcus viridans and Staphylococcus aureus, examined by the slide method of Wright, modified by Fleming. This technic was also used in cases of Neisseria gonorrhoeae and Neisseria meningitidis. Their observations indicate that the bacteriostatic effect was dependent on the presence of leukocytes. The consensus at present is therefore that sulfanilamide and some of its derivatives exert a bacteriostatic effect in different degrees depending on the type of organism and the nature of the derivative but that the presence of leukocytes and probably some other factors are necessary for effective action. (*J. A. M. A.*, December 17, 1938, p. 2306.)

Sulfapyridine in Pneumonia.—Since its introduction, too short a time has elapsed for adequate study, and at the present time there is no conclusive evidence that sulfapyridine is of value in the treatment of the penumonias in man, though informal reports made so far indicate encouraging results. To reach a conclusion concerning the value of this or other therapy for pneumonia, one must learn whether among the patients who receive the treatment more lives are saved and whether there is less bacteremia and fewer complications than among those from whom it is withheld. So far the product has not been licensed by the Federal Food and Drug Administration for sale in interstate commerce. The advisory committee on pneumonia control of the New York State Department of Health believes that the evidence of the safety and therapeutic value of sulfapyridine in the treatment of any of the various types of pneumococcic pneumonia is at the present time inconclusive. According to a resolution adopted by the committee at a meeting December 16, the committee further believes that the distribution of this drug should be restricted to experimental centers having facilities for careful study of toxicity and therapeutic efficiency until adequate evidence of the safety of the use of the drug and its therapeutic efficiency has been obtained. (*J. A. M. A.*, January 7, 1939, p. 76).

Trichloroethylene.—The Council on Pharmacy and Chemistry has adopted the following addition to the statement on trichloroethylene now appearing in New and Nonofficial Remedies, 1938, p. 54:

"Trichloroethylene has recently been proposed for use in the prevention and treatment of attacks of angina pectoris. It is believed that trichloroethylene is worthy of trial for this purpose, provided patients are under continued medical supervision, as in the clinic. Trichloroethylene is a general anesthetic, and its use for this purpose is subject to all the dangers and disadvantages of anesthetics. It should never be prescribed in bulk or taken in large doses. From 1 to 3 cc. a day, in divided doses, is ample. The drug should always be taken with the patient in a reclining position, and the material should not be substituted for amyl nitrite in the treatment of the acute anginal attack. Each patient should be warned of the possibility of addiction. Excessive dosage of trichloroethylene may mask a severe attack of coronary pain and lead to its being ignored where it should receive immediate medical attention, together with bed rest. It should be used cautiously in the prevention of attacks because it may mask pain which otherwise would indicate exertion beyond the capacity of the heart."
(*J. A. M. A.*, January 14, 1939, p. 145.)

Book Announcements

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

LIVERSEEGER, J. F. Adulteration and analysis of foods and drugs.
MALLORY, F. B. Pathological technique.
MCGREGOR, H. G. The emotional factors in visceral disease.
MILLER & DAVIDSON. Practical pathology.
PAULSEN, F. An autobiography.
REIMANN, H. A. The pneumonias.
RIESMAN, D. Medicine in modern society.
RIGGS, A. F. Play recreation in a balanced life.
VON REUSS, A. The diseases of the newborn.
WADDINGTON, J. E. G. Physical therapy.

Trauma and Internal Disease. A Basis for Medical and Legal Evaluation of the Etiology, Pathology, Clinical Processes, Following Injury. By FRANK W. SPICER, A.B., M.D., F.A.C.P. Philadelphia. J. B. Lippincott Company. 1939. O tavo of xix-593 pages. 43 illustrations. Cloth. Price, $7.00.

This volume of 548 pages attempts to cover the relation of truma to general problems of medicine. The impression is that the author has made a real contribution to medical literature by bringing together in one volume these widely scattered data concerning the effects of trauma and its treatment.

The only adverse criticism is that the field is such a wide one and it involves so much special knowledge that it is doubtful whether any single individual can hope to express a very adequate opinion on such a diverse group of subjects. The reviewer gets the impression that in some places the author is well versed with the subject, while in others his knowledge is of a limited character.

The references are very well chosen, but in many instances important omissions have occurred.

However, the book should be in the hands of everyone engaged in the practice of medicine for the reason that there is no phase of medicine which is assuming a more prominent place than the problem of trauma and disease.

WILLIAM B. PORTER, M.D.

Virginia Medical Monthly

Founded by LANDON B. EDWARDS, M. D., April, 1874
Owned by MEDICAL SOCIETY OF VIRGINIA since November, 1919
WYNDHAM B. BLANTON, M. D., *Editor*
AGNES V. EDWARDS, Richmond, *Business Manager*

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All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance. Single Copies 25c.

VOLUME 66 — APRIL, 1939 — No. 4

Editorial

Fifty Kinds of Pneumonia.

World wide interest in pneumonia continues to grow. A decade ago pneumonia therapy labored under the weight of years of pessimism. In spite of many attempts at new treatment the death rate had continued unabated. Now light has dawned. Now there is a general admission that serum therapy will reduce the morbidity of pneumonia on the average of at least 50 per cent and there is hope that sulfanilamide and sulfpyradine will still further reduce the death rate.

During these recent years of successful investigation there have appeared in medical literature the expected large number of articles dealing with various phases of pneumonia, and there have been two or three books which have admirably summarized the current writing on the subject.

The latest of these books is from the press of W. B. Saunders Company, Philadelphia, and is written by Hobart A. Reismann, M.D., professor of medicine in Jefferson Medical College. *The Pneumonias,* as it is entitled, is a concise and clear presentation of present knowledge compressed into 350 pages. The subject is presented entirely from the etiological point of view and on this basis an admirable classification is given. The specific forms of pneumonia occupy the first section of the book—the typical pneumonias and the atypical pneumonias, caused by the cocci (of which the pneumococcus is foremost), by the bacilli, by the viruses, the fungi and the molds. In the second section pneumonia as a specific form of systemic disease is presented. Part three is concerned with pneumonia secondary to acute and chronic diseases, mechanical causes, shock, senility and the mixed infections. The final section briefly discusses certain rare and recently described pneumonias which are of intense interest, such as lipoid pneumonia, radiation pneumonia and allergic pneumonia. Altogether more than fifty-odd varieties of the disease are discussed.

As one closes the book one is convinced that Dr. Reismann has done a good job. One is also convinced that pneumonia under the modern conception is a specialty of wide ramifications and that until every case is thoroughly studied bacteriologically with due regard to epidemiological factors and with reliance upon such essential aids as roentgenology, accurate diagnosis and effective therapy are impossible.

The Endocrine Dilemma.

Professor W. G. Crockett's article published elsewhere in this issue of the MONTHLY as well as the following communication from Dr. R. J. Main relative to it are of such extreme interest and importance at this time that they deserve the attention of the medical profession of Virginia.

Dr. Main's comments furnished at the Editor's request point the way to a practical solution of the

dilemma that faces us all, and it is hoped that the Medical Society of Virginia will take appropriate action at its next meeting. Dr. Main writes:

"The article in this issue by Professor W. G. Crockett, Phar.D., listing preparations and strengths of the various endocrine extracts of gonadotropic, estrogenic, and androgenic hormones, should prove valuable both to physicians and pharmacists, for it contains certain information not readily available elsewhere. Each year I have drawn up a similar, though very inadequate summary of such preparations for the benefit of students, but I have never had the time or ambition to do the thorough job which Doctor Crockett has so satisfactorily accomplished. I expect to make good use of this article this year for teaching purposes, except that I will arbitrarily omit certain products whose advertising statements sound too Utopian. The reason I consider this information of value, is that the 1938 N. N. R. (supplement) lists only two brands of two estrogenic hormones, and no androgenic, gonadotropic, luteal, or growth preparations. Granted that such a publication must be conservative, data on other brands and hormones should be readily available. It is true that the therapeutic status of these is not proven, but they are being widely used nevertheless, and up to date unbiased information concerning them should be easily obtainable. At present, for instance, a physician wishing to administer an androgenic hormone, is forced to rely upon the manufacturer's recommendation as to mode of treatment, as he seldom has the time or facilities to investigate the literature for original articles. Does this not mean that we are permitting commercial concerns to teach postgraduate medicine?

"To remedy this condition, I would like to see the Medical Society of Virginia appoint a committee to publish a yearly comparison of these endocrine products, including indications, prices, dosages, preparations, and dangers of misuse—to continue until sufficient are incorporated in the N. N. R. to make it unnecessary. Although such a report should not be considered a recommendation—as inclusion in the N. N. R. is regarded—nevertheless I consider that some control should be exercised, i.e. to include no preparation of the estrogenic, androgenic, or luteal hormones which does not state the amount of the pure hormone it contains, and to drop entirely the classification of International Units for these three hormones, which can now be discarded as having served its purpose.

"Since it is now impossible to compare potencies of various preparations, especially of the growth hormone, because of the various assay procedures used, the committee could undoubtedly obtain from the manufacturers a statement of the strength of their preparations in terms of one specific test, so that comparisons could be made. I suspect that the reason for such a multiplicity of tests for both gonadotropic and growth hormones is not that manufacturers can not agree upon a suitable test, but is rather because some preparations would show up very poorly if all were subjected to the same assay. Even though the manufacturer may prefer to state on the label the strength according to his favorite test, he should be willing to tell such a committee the strength of his preparation when assayed by some other method.

"If a manufacturer should refuse to give information allowing comparison of his product with others, I believe it might as well be omitted from the report, as indicative that the comparison would reflect upon the potency.

"Such a report should omit all reference to, unless to damn, unassayed hormone preparations, and those standardized by methods no longer accepted. This rejection of unassayed preparations would automatically omit such soup stock as dried testicular extract, dried mammary gland, dried parathyroid, dried ovary and corpus luteum, and various whole gland pituitary extracts containing 'all the active principles'. Reference to a few recent articles pro and con could be included, together with the commitee's judgment.

"Naturally the manufacturers will not appreciate having the prices of their products listed, since possibly a short time after publication of the report they may decide to lower them. However, it will then be up to them to see that the physician learns about it. I consider it better to know what the price of a product was a year ago than to have no idea at all. What one really needs to know is not whether a preparation costs $2.50 or $2.30 per dozen ampules, but if it costs in the neighborhood of 25c an ampule, or $4.00.

"It is easy to say that the average physician should not attempt to use such non-official preparations as the growth hormone; that he is not in a position to accurately rate the results. That is the theory. The fact is what physician will refuse to do some-

thing for a child who threatens to remain a dwarf, if there is any possibility of helping him? At any rate, even if this is considered inadvisable, at least we should not discourage it by childishly attempting to withhold such information. The conclusions of the committee should point out such objections.

"While we are at it, why not have this committee include a report on certain new drugs, such as sulfanilamide and sulfpyradine: whether it is necessary to administer $NaHCO_3$ with it, for what diseases it has proven of value, and those in which it has not. Again, it might also include a brief review of recommended vitamin preparations. In short, this yearly report could cover all controversial important preparations, to afford the physician a source of data on these drugs aside from the advertising material with which he is deluged and which, as some have so unkindly suggested, may be tainted with bias."

The Wilbur Addresses.

The March of Medicine by Ray Lyman Wilbur, M.D., President of Stanford University (Stanford University Press, 1938) is a selection of addresses and articles on medical topics by a distinguished physician and educator. The book might well have been entitled *The Way of Wilbur* for in a sense it is the account of the geographical and biographical pilgrimage of the author for the last twenty-five years of his life. It represents two and a half decades of the life of a teacher, a practitioner of medicine, a president of the American Medical Association, a cabinet officer, a student of medical economics, a university president. It represents more than a score of years of his thinking and lecturing about biology and therapeutics, curricula, medical education, teaching, hospitals, public health and the newer economic problems of medicine. It is a recounting of his journeyings at the most important and fruitful period of his life through medicine and its many impingements on society and government.

It is good reading for the doctor. Here is a chart and compass, inspiration and idealism, liberalism and a position always in the vanguard of progress. Dr. Wilbur sees clearly for his fellow physicians responsibilities far out-reaching the circumscribed limits that are implied in the diagnosis and treatment of disease. In his opinion the doctor has a role to play in preserving the family as a social unit, in popularizing and making effective present knowledge concerning eugenics, in driving charlatans, quacks and frauds to cover, in combating the social scourge of alcohol, in disease prevention through wider implementation of the public health service, and in working out an economic plan whereby no citizen will be denied adequate medical service no matter what his ability to pay may be. Dr. Wilbur's ambitions for medicine as a profession are pointedly expressed in one of his earlier addresses. In discussing the future relation of the physician to the state and in defending the thesis that medicine is a profession not a trade, he says: "We can unite for higher standards, better ethics, purer ideals; but we cannot strike for shorter or limited hours or less responsibility."

To the lay reader this series of addresses will prove neither dull nor technical. He may be surprised to find how wide and catholic are the interests of the medical profession, how profound and varied are its problems. He may come upon it as a new idea that medical ethics is not the petty subject it is sometimes considered to be by the uninformed, but that it has a meaning of deep and wide significance with roots indubitably connected with the welfare of human beings. It is to be hoped that in their absorption in the glamorous aspects of medicine, in their suspicion of the commercial motives of medicine, in their determination to spread rapidly the scientific benefits of medicine, the public will not neglect this dignified exposition of the liberal physician's point of view voiced by a medical statesman.

Department of Clinical and Medical Education
of the
Medical Society of Virginia

Courses in Internal Medicine.

The departmental report last month announced the subjects and dates for the course in internal medicine arranged in Alexandria, Virginia, with the cooperation of the Alexandria Medical Society. The report also announced tentative plans for courses in

Lynchburg and in Martinsville. The details for the Lynchburg and Martinsville courses have now been completed and are as follows.

LYNCHBURG

Friday, April 7. 8:00 p.m.
Congestive Heart Failure with reference to Diuresis. Dr. W. B. Porter, Medical College of Virginia

Friday, April 14. 8:00 p.m.
Deficiency Diseases and Their Treatment. Dr. Harry Walker, Medical College of Virginia

Friday, April 21. 8:00 p.m.
Acute Nephritis. Dr. Edwin Wood, University of Virginia

Friday, April 28. 8:00 p.m.
Diseases of the Thyroid, Suprarenal and Parathyroid Glands. Dr. H. B. Mulholland, University of Virginia

Friday, May 5. 8:00 p.m.
Acidosis, Alkalosis and Dehydration. Dr. Mulholland

Friday, May 12. 8:00 p.m.
Recent Advances in the Study of Hypertension and Their Bearing on Treatment. Dr. Edwin Wood

Friday, May 19. 8:00 p.m.
Carbohydrate Metabolism. Dr. Mulholland

Friday, May 26. 8:00 p.m.
Rheumatic Fever. Dr. Edwin Wood

Friday, June 2. 8:00 p.m.
Late Toxemias of Pregnancy. Dr. Tiffany Williams, University of Virginia

Friday, June 9. 8:00 p.m.
Classification and Treatment of the Anemias. Dr. J. H. Scherer, Medical College of Virginia

Relevant clinical cases or case histories and a round-table discussion will follow each meeting.

MARTINSVILLE

Tuesday, March 14. 3:00 p.m.
Headaches. Dr. John M. Meredith, Assistant Professor of Neurological Surgery, University of Virginia

Tuesday, March 21. 3:00 p.m.
Endocrinology—with special reference to Menstrual Disorders. Dr. Edwin C. Hamblen, Associate Professor of Obstetrics and Gynecology and Director of Endocrine Division, Duke University

Tuesday, March 28. 3:00 p.m.
Deficiency Diseases and Their Treatment. Dr. David T. Smith, Associate Professor of Medicine, Duke University

Tuesday, April 7. 3:00 p.m.
Pneumonia—with special reference to Serum Treatment. Dr. H. B. Mulholland, Professor of Practice of Medicine, University of Virginia

Friday, April 14. 7:00 p.m.
Gall Bladder Disease and Its Treatment. Dr. Staige D. Blackford, Assistant Professor of Practice of Medicine, University of Virginia

Following each meeting there will be a presentation of clinical cases or case histories relevant to the subject and a round-table discussion.

Other local societies desiring to arrange for similar courses are invited to correspond with the Executive Secretary.

The McGuire Lectures and Postgraduate Clinics

Of the Medical College of Virginia will be held April 27 and 28.

The McGuire Lectures will be at 8:30 on both evenings. The speaker for these will be Dr. Wilder Penfield, B. Litt., M.A., M.D., B.Sc., D.Sc.(Oxon), F.R.C.S.(C), of the Neurological Institute of Montreal, Canada The first lecture, on the 27th, will be on "Epilepsy, Mechanism and Pathology" and the second on "Epilepsies—Selective Study and Surgical Therapy".

The post-graduate seminar on Neuropsychiatry on the 28th, will begin at 10:00 a.m., with the following subjects: "The Relation of State Hospitals to Out-Patient Clinics for Mental Diseases" by Dr. H. C. Henry, Associate in Neuropsychiatry and Director of State Hospitals of Virginia; "Fever Therapy" by Dr. J. Asa Shield, Associate in Neuropsychiatry; "The Use of Insulin and Metrazol in the Treatment of Psychoses" by Dr. Joseph R. Blalock, Associate in Psychiatry and Superintendent of Southwestern State Hospital; "Management of the Functionally Nervous case" by Dr. R. Finley Gayle, Jr., Professor of Neuropsychiatry; and "Eugenic Sterilization of the Epileptic and Mentally Deficient" by Dr. G. B. Arnold, Superintendent of the Capitol State Colony for Feebleminded and Epileptics.

Discussions and demonstrations on Neurological Surgery will begin at 2:00 o'clock, with the following participants: Dr. C. C. Coleman, Professor of Neurological Surgery, presiding; Dr. Charles Bagley, Jr. (Invited Guest), Professor of Neurological

Surgery, University of Maryland, Baltimore; Dr. W. Gayle Crutchfield, Assistant Professor of Neurological Surgery; and Dr. J. M. Meredith (Invited Guest), Assistant Professor of Neurological Surgery, University of Virginia Hospital.

All lectures will be held in the auditorium of the Richmond Academy of Medicine Building, 1200 East Clay Street, Richmond.

GEORGE B. ZEHMER,
Executive Secretary,
Box 1487, University Station,
Charlottesville, Virginia.

Proceedings of Societies

The Wise County Medical Society

Held its annual meeting on February 23, at which time officers were elected for the ensuing year as follows: President, Dr. G. B. Bowers, Stonega; vice-presidents, Dr. C. H. Henderson, Norton, Dr. J. D. Culbertson, Coeburn, and Dr. F. S. Givens, Wise. Dr. C. L. Harshbarger of Norton was re-elected secretary-treasurer. The Board of Censors for the year is composed of Dr. G. T. Foust, Norton, Dr. W. R. Culbertson, Coeburn, and Dr. W. B. Peters, Appalachia. New members admitted during the past year include: Drs. W. B. Barton of Stonega, J. H. Liebman and J. J. Porter of Norton, and R. M. Lechausse of Pardee.

Danville-Pittsylvania Academy of Medicine.

At the regular meeting of the Academy on March 14, Dr. C. P. Mangum of Richmond spoke on Pediatric Endocrinology, and Dr. E. C. Hamblen of Duke University discussed the Adrenal Gland. It was announced that at the next meeting, to be held April 11, Dr. T. J. Williams of the University of Virginia will be guest speaker, his subject to be Toxemias of Pregnancy.

Dr. P. W. Miles and Dr. S. C. Hall, both of Danville, are president and secretary, respectively, of the Academy.

The Lynchburg Academy of Medicine

Held its regular meeting in the Elks' Club on March 6, with the president, Dr. S. E. Oglesby, presiding. This was one of the most largely attended meetings of the Academy. Dr. Waldo M. Wattles was unanimously elected to membership, and a letter from Mrs. J. C. Flippin was read, expressing appreciation for a floral wreath sent as a token of sympathy and esteem at the time of Dr. Flippin's death.

Dr. E. G. Scott announced that the special course in Internal Medicine to be held weekly through the Department of Clinical and Medical Education of the State Society would start April 7.

Dr. Bayard Carter, professor of gynecology and obstetrics at Duke University, was the guest speaker. He gave an excellent illustrated talk on "External Genitalia Lesions of the Female". Prior to the meeting, Dr. J. W. Devine had given a dinner to members and guests in honor of Dr. Carter.

Dr. Harvey Brownley stated that Dr. A. I. Dodson, professor of urology at the Medical College of Virginia, Richmond, would be the guest speaker in April.

Dr. C. E. Keefer of Lynchburg is secretary of the Academy.

The Roanoke Academy of Medicine

Held its regular monthly meeting on March 6. The following scientific program was presented: Birth of Conjoined Twins, Eight and One-Half Months Gestation, by Dr. H. C. Padgett; Carcinoma of the Rectum by Dr. W. L. Sibley; and The Management of Far Advanced Pulmonary Tuberculosis by Dr. L. R. Broome.

Dr. W. W. S. Butler is president of the Academy and Dr. A. C. Davis, secretary.

The Southside Virginia Medical Association

Held its regular quarterly meeting in Franklin on March 21. The scientific program consisted of a symposium on Diseases of the Chest. The following were speakers and their subjects: Dr. John A. Proffitt, Burkeville, on The Early Signs and Symptoms of Tuberculosis of the Chest; Dr. Porter P. Vinson, Richmond, on Aids in the Early Diagnosis of Primary Carcinoma of the Bronchus; Dr. Wright Clarkson, Petersburg, on The X-ray in the Diagnosis of Diseases of the Chest; Dr. Louis H. Clerf, Philadelphia, Pa., on Bronchiectasis: A consideration of Its Causes and Its Prevention; and Dr. I. A.

Bigger, Richmond, on Surgery of the Chest. Following dinner at the Stonewall Hotel, a round-table discussion of the symposium was held.

Dr. C. S. Dodd, Petersburg, is president of this Association, and Dr. R. L. Raiford, Franklin, secretary-treasurer.

News Notes

Leaders Who Lead.

Some persons are naturally endowed with those qualities defined as "leadership", often vague in implication but unmistakable in result. Members of the medical profession hold a high place in this group and it is to these leaders that the National Tuberculosis Association and its affiliated organizations appeal this month in its annual Early Diagnosis campaign. Two hundred people die each day from tuberculosis in the United States. Eight out of ten persons, when admitted to sanatoria, are in an advanced stage of the disease. Advanced tuberculosis is difficult, often impossible, to cure. Early tuberculosis is difficult to find, but is usually easy to cure. Therefore, members of the medical profession, in this case, are in a unique position, which calls for leadership with a keen sense of public duty.

Physicians know that cases presenting physical signs and symptoms sufficient to warrant a visit to the doctor rarely are in the minimal stage. They know that tuberculosis may be detected by the X-ray months before it can be heard with the stethoscope. Doctors are asked to help spread this information to patients and the general public. Impress upon them the value of an annual health examination including an X-ray. Help find the spreaders of this disease who may be hidden in the family circle or among friends.

The Virginia Society of Oto-Laryngology and Ophthalmology

Will hold its annual meeting at Hotel Roanoke, Roanoke, on Saturday, May 6, 1939, under the presidency of Dr. Charles T. St. Clair of Bluefield, W. Va. In addition to the regular program, there will be two prominent guest speakers. Dr. Mortimer H. Williams, Roanoke, is secretary of this Society.

The Southwestern Virginia Medical Society

Will hold its Spring meeting in Bristol, April 13, with Dr. H. W. Bachman of that city presiding. The one-day plan has been selected and the meeting will open with a scientific program beginning at 1:30 p.m. The regular banquet, with Dr. E. C. Hamblen of Duke University as the guest speaker, will be held at 6:30. His subject will be Endocrinology. Dr. James P. King of Radford is secretary, and the local committee in charge of arrangements is composed of Dr. George McCall, chairman, and Drs. W. M. Gammon and W. R. Rogers.

Annual Scientific Assembly at Washington.

The Medical Society of the District of Columbia announces that its Annual Scientific Assembly will be held April 25, 26, and 27, in the Mayflower Hotel in Washington. Gastroenterology in all its phases will be the subject covered in the three-day postgraduate course, offering about fifty-two papers, panels and round tables on the subject. The program lists in addition to many prominent physicians of the faculties in Washington the following from elsewhere: Dr. Lewellys L. Barker, Baltimore; Dr. Fred Rankin, Lexington, Kentucky; Dr. L. M. Hurxthal of Lahey Clinic, Boston; Dr. R. J. Coffey, formerly of Mayo Clinic; Dr. B. B. Vincent Lyon, Philadelphia; Dr. E. H. Gaither, Baltimore; Dr. P. P. Vinson, Richmond; Dr. Eloise B. Cram, National Health Institute.

Luncheons, stag meeting, banquet, and entertainment for visiting wives are provided by the Society.

Reservations are being taken by Theodore Wiprud, Secretary of the Society, 1718 M St., N. W., who will forward full information on request.

Medical College of Virginia News.

Dr. Lewis E. Jarrett, Director of the Hospital Division, attended the regional conference of the American College of Surgeons in Baltimore recently, giving a paper on "Professional Standards as Affecting Hospital Practice".

The woman's medical fraternity of the college sponsored an address by Dr. Priscilla White of Boston on March 7 at the Richmond Academy of Medicine. Dr. White spoke on "Some of the Newer and Interesting Phases of Diabetes".

The annual spring symposium of the school of pharmacy was held March 9. Speakers included Dr. E. F. Kelly, secretary of the American Pharmaceutical Association; Mr. A. L. I. Winne, secretary of the State Board of Pharmacy; Dr. Harvey B. Haag, professor of pharmacology, Dr. Rolland J. Main, associate professor of physiology, and Dr. Roshier W. Miller, professor of materia medica, of the college faculty, and Mr. W. G. Tarrant, a druggist of the city. Dr. J. A. Reese, assistant professor of pharmacognosy acted as chairman of the committee on arrangements for the symposium.

Dr. Patrick F. Drewry, Jr., has been appointed full-time assistant professor of neuropsychiatry. Dr. Drewry is now in London for special study in this field under a fellowship grant from the Rockefeller Foundation. He will some to the college next spring when it is anticipated the new hospital, which will have an active psychiatric service, will be completed.

Dr. William T. Sanger, president of the college, will make the Founders' Day address at Bridgewater College, April 3. On this occasion he will be awarded the honorary degree of Doctor of Humane Letters by his alma mater.

Dr. Fred P. Fletcher, president of the alumni association, met with the New York alumni on March 18.

Dr. Max Minor Peet, professor of surgery, University of Michigan, was a visitor to the college on March 16. During his visit he lectured to the junior and senior classes of the school of medicine.

Dr. William B. Porter, professor of medicine, attended the annual meeting of the American College of Physicians in New Orleans, March 27-April 1.

News from the University of Virginia, Department of Medicine.

The Nemours Foundation of Wilmington, Delaware, has awarded a Fellowship to Dr. Julian R. Beckwith, Senior Resident in Medicine, for research in the field of pressor substances in the School of Biochemistry under the direction of Professor Alfred Chanutin.

At the meeting of the University of Virginia Medical Society on February 27, Dr. Porter Vinson of Richmond spoke on the subject of Gastroscopy.

On March 3, Dr. H. B. Mulholland delivered the second lecture in a postgraduate course in Internal Medicine in Alexandria, Virginia, under the auspices of the Division of Extension of the University of Virginia. He spoke on Diseases of the Thyroid, Suprarenal and Parathyroid Glands.

On March 3 and 4, Dr. Fletcher Woodward spoke before the Georgia State Eye, Ear, Nose and Throat Society in Atlanta, Georgia, on the subjects Treatment of Acute Ear Infections and Treatment of Acute Sinusitis in Children.

Lieutenant-Colonel E. B. Maynard, of the Reserve Officers Training Corps, Medical College of Virginia, addressed the students of the Fourth Year Class on February 15.

On March 10, Dr. Oscar Swineford, Jr., gave the second lecture in the postgraduate course in Internal Medicine in Alexandria, Virginia. He spoke on the subject of Rheumatism.

Dr. Clarence Little, Director of the Jackson Memorial Laboratory at Bar Harbor, Maine, addressed the University of Virginia Chapter of Sigma Xi on March 7. His subject was Genetics of Cancer.

Dr. J. R. Massie,

Who was for sometime health officer of the Dickenson-Wise-Scott Health Unit, with headquarters at Norton, is now on the surgical staff of the Hospital Division of the Medical College of Virginia in Richmond.

Married.

Dr. Thomas Edmond Hughes of Richmond and Miss Mary Elizabeth Warren, of Delaplane, February 23.

Dr. James Brooke Pettis

Has been appointed as director of clinical psychiatry at the Western State Hospital, Staunton. This is a new position, the purpose of which is to develop more comprehensive clinical work under a specially trained psychiatrist and, at the same time, to relieve the superintendents of this phase of the work. Clinical psychiatry directors are to be assigned to other State hospitals as staff vacancies and hospital budgets permit.

Dr. Pettis is a native of Norfolk and graduated from the Medical College of Virginia in 1930. He has recently been clinical psychiatrist and director of mental hygiene clinics of the New Jersey State Hospital, Marlboro, N. J.

Southeastern Surgical Congress.

At the annual meeting of this Association, held in Atlanta, the first of March, the following officers were elected: President, Dr. Irvin Abell, Louisville, Ky.; vice-president, Dr. Grady Clay, Atlanta; and secretary-treasurer Dr. W. T. Beasley (re-elected), Atlanta.

News Notes from Duke University School of Medicine.

On March 1, a lecture on "Drug Addictions", was given by Dr. Lawrence Kolb, Assistant Surgeon General of the U. S. Public Health Service, in charge of Mental Hygiene.

On March 8, a motion picture film on industrial accidents and their care was shown by Dr. Henry H. Kessler, American authority on Cineplastic Surgery.

On March 9, a lecture and motion picture on "Life Camps" was given by Dr. L. B. Sharp, Director of Life Camps.

American Medical Association.

The next meeting of the Association is to be in St. Louis, Mo., May 15-19. Full information in regard to this will appear in *The Journal of the A. M. A.*, from time to time. This is simply a reminder to those who expect to attend.

The American Physicians' Art Association,

Composed of members in the United States, Canada, and Hawaii, will hold its second Art Exhibit in the City Art Museum of St. Louis, May 14-20, 1939, during the annual session of the American Medical Association. Art pieces will be accepted for this art show in the following classifications: (1) oils both (a) portrait and (b) landscape; (2) water colors; (3) sculpture; (4) photographic art; (5) etchings; (6) ceramics; (7) pastels; (8) charcoal drawings; (9) book-binding; (10) wood carving; (11) metal work (jewelry). Practically all pieces sent in will be accepted. There will be over sixty valuable prize awards. For details of membership in this Association and rules of the Exhibit, kindly write to Max Thorek, M.D., Sec'ty, 850 Irving Park Blvd., Chicago, Ill., or F. H. Redewill, M.D., Pres., 521-536 Flood Bldg., San Francisco, Calif.

Dr. Fishbein to Speak in Richmond.

Dr. Morris Fishbein, Editor of the *Journal of the American Medical Association,* will be the speaker before the section on Medical Care of the Virginia Conference on Social Work, to be held in Richmond on April 20. His subject will be "Social Aspects of Medical Care".

Among other speakers for this meeting will be Dr. Wyndham B. Blanton, Editor of the VIRGINIA MEDICAL MONTHLY, and Dr. R. W. Garnett, City Health Officer of Danville.

Dr. W. O. Tune,

Brookneal, has been appointed by Governor Price as a member of the Commission on County Government.

Dr. R. H. Harrington,

For some time at Grant, is now located in Marion.

The New York World's Fair.

Every phase of the progress made in recent years to improve the health of communities will be portrayed at the New York World's Fair. In addition to effective exhibits in the Medical and Health Building, the Hall of Pharmacy, and elsewhere, numerous lectures are to be given. Among these will be the discourses on child health and care at the Children's World, where children can be left under the constant supervision of trained attendants.

Various health organizations are holding meetings and conventions in connection with the Fair and these events will be celebrated by special days assigned to each group. Among the dates which have been allotted so far are: May 1-8, National Child Health Week; May 12, National Hospital Day, Nurses Day; May 16, American Medical Association; May 17, Red Cross; May 19, Tenth International Congress of Military Medicine and Pharmacy; May 31, State Medical Association; June 3, American Academy of Pediatrics; June 4, American Society for the Hard of Hearing; June 18, New York City Health Department; June 23, School Health Day; June 27, County Medical Association; and October 21, National Health.

Annual Prize Offered.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons announces that the annual Foundation Prize for this year will be $100.00. Those eligible include only (1) interns, residents, or graduate students in Obstetrics, Gynecology and Abdominal Surgery, and (2) physicians (M.D. degree) who are actually practicing or teaching Obstetrics, Gynecology or Abdominal Surgery.

Competing manuscripts must (1) be presented in

triplicate under a nom-de-plume to the Secretary of the Association before June 1, (2) be limited to 5,000 words and such illustrations as are necessary for a clear exposition of the thesis, and (3) be typewritten (double-spaced) on one side of the sheets, with ample margins.

The successful thesis must be presented at the next annual (September) meeting of the Association, without expense to the Association and in conformity with its regulations.

For further details, address Dr. James R. Bloss, Secretary, 418 11th Street, Huntington, W. Va.

Dr. L. S. Early,

Petersburg, was re-elected chairman of the Salvation Army Advisory Board of that city, at its annual meeting on February 27.

New Assistant Physician at Eastern State Hospital.

Dr. L. T. Browning was appointed by the State Hospital Board to the position of Assistant Physician at Eastern State Hospital, Williamsburg, effective March 1. He is a native of West Virginia, a graduate of the University of Louisville, and, at the time of his appointment, was in charge of the male receiving and acute psychiatric service at Kankakee State Hospital, in Illinois.

National Health Council.

The re-election is announced of Ira V. Hiscock, professor of Public Health in Yale University School of Medicine, as president of the National Health Council for 1939.

Congress of Military Medicine and Pharmacy.

The tenth International Congress of Military Medicine and Pharmacy will be held in Washington, D. C., May 7 to 15, inclusive. In addition to the scientific program, visits have been planned to a number of nearby places which have an especial interest for those connected with military life. Registration is without fee and blanks will be sent all medical officers of the military, naval, air and public health services, or others interested, on application to the secretary-general, Col. Harold W. Jones, M.C., U. S. Army, Washington, D. C.

Student and Senior Internes Wanted.

The California State Personnel Board has issued a statement that they wish to recruit the best qualified persons for Student Interne and Senior Interne. There is no residence requirement for these examinations and no written test will be given. Applicants will be rated on education, experience and appraisal of scholastic record. Applications may be filed at any time during 1939 and will be rated immediately. If a candidate's qualifications, after investigation, are acceptable, his name will be placed on the list of those eligible for employment, in accordance with his rating.

For further information, address Mr. Louis J. Kroeger, executive officer, State Personnel Board, 1025 P Street, Sacramento, California.

Dr. Paul L. Dent,

Louisville, Ky., announces the removal of his offices from 3812 Frankfort Avenue to 2202 West Broadway, that city.

Dr. Williams to Serve as Delegate.

Dr. Carrington Williams, Richmond, will serve as one of the delegates from the Medical Society of Virginia to the American Medical Association, at its meeting in St. Louis, filling the vacancy caused by the death of Dr. J. C. Flippin.

Wanted—

Location to practice, or assistantship. Recent graduate Grade A medical school, two years internship, two years practice, age twenty-nine years, married. Write "Young Doctor", care the VIRGINIA MEDICAL MONTHLY. (*Adv.*)

For Sale—

Modern office equipment and surgical instruments. Address "Modern Equipment" care this JOURNAL, 1200 East Clay Street, Richmond. (*Adv.*)

For Sale—

Standard office Burdick Quartz ultra-violet lamp. For information, write "Quartz" care VIRGINIA MEDICAL MONTHLY, Richmond, Va. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Obituary Record

Dr. John Alsop Pilcher, Jr.,

Prominent young Roanoke physician, died suddenly March 7. He was thirty-four years of age and

a graduate of the University of Virginia, Department of Medicine, in 1929. Dr. Pilcher located in Roanoke in 1931 where he was connected with the Gill Memorial Eye, Ear and Throat Hospital. He had recently completed a post-graduate course in London and had opened offices for private practice the first of the year. Dr. Pilcher joined the Medical Society of Virginia in 1932. His wife survives him.

Dr. Garland Lightfoot Morriss

Of Blackstone died February 24, following a long illness. He was a native of Richmond and sixty years of age. Dr. Morriss graduated from the former University College of Medicine, Richmond, in 1902, and practiced in Buckingham County for many years where he was prominent in public affairs, serving as treasurer of the county and as a member of the board of supervisors. He had been in Blackstone for the past four years. He was a member of Acca Temple Shriners, the Kenbridge Kiwanis Club, and the Medical Society of Virginia. His wife and a daughter survive him.

Dr. Cecil Dabney

Died at his home in Baltimore on March 7, having been in ill health for the past nine years. He was fifty-five years of age and received his medical degree from the University of Virginia in 1910. Dr. Dabney formerly served as a medical missionary in China. His wife survives him.

Resolutions on Dr. Flippin.

WHEREAS God in His infinite wisdom has seen fit to remove from our midst our friend, colleague and co-worker, Dr. J. Carroll Flippin,

BE IT RESOLVED that we, representing the Medical Society of Virginia, extend to his wife and children our esteem, love and sympathy, and

BE IT RESOLVED that in the death of Dr. Flippin, a former President of our Society, the State of Virginia has lost a most valuable citizen, and the medical profession of Virginia an advisor whose counsel will be greatly missed.

AND FURTHERMORE BE IT RESOLVED that a copy of these resolutions be printed in the VIRGINIA MEDICAL MONTHLY and sent to the family.

HUGH H. TROUT, M. D.
C. O. DEARMONT, M. D.
JULIAN L. RAWLS, M. D.
Committee from the Council of the Medical Society of Virginia.

Resolutions on Dr. McKinney.

The Staff of the Lewis-Gale Hospital records with profound sorrow the death on February 3, 1939, of one of its members, Dr. Joseph T. McKinney. Coming to Roanoke several months following his discharge from the Army in 1919, he became a member of this staff, and for a period of twenty years he was chief of the Rotentgen Ray Department. Ever diligent in keeping abreast of the progress being made in all the branches of medicine, and of the developments in his own specialty, he acquired a broad knowledge, which with powers of keen observation and logical deduction, enabled him to express fearlessly though modestly his opinions.

He was a member of the local and State medical societies, and of the American Medical Association. He was also a member of the American Roentgen Ray Society, of the Radiological Society of North America, and of the American College of Radiology.

Although busy in his own department, he devoted much time and thought to the improvement of the hospital in order for it to meet the constantly increasing standards set by the American College of Surgeons and the American Hospital Association. With a sense of pride in the steady growth of this hospital, he saw the new addition to it opened last April, although he was not permitted to live long enough to see his own department with new equipment in the new and enlarged quarters.

Although he achieved eminence in Roentgenology, his activities were not limited to medicine. The catholicity of his interests, combined with a genial nature, and a sympathetic understanding, made him an attentive listener to the problems of his fellowmen, and his efforts to help them, won for him a position of esteem and honor in the city.

THEREFORE, BE IT RESOLVED, *First,* that in the passing of Dr. McKinney the Lewis-Gale Hospital has lost a faithful member of its Staff.

Second, that we, the other members of the Staff, have list a faithful colleague and associate, and

Third, that we tender our heartfelt sympathy to the members of his family in their loss and bereavement, and we trust that, with the Comfort which comes from the Heavenly Father, they will find consolation in the knowledge of the services rendered by Dr. McKinney to the hospital, to the members of his profession, and to his community, of his devotion to and his love for his home, his church, his community and his country, of his thoughtfulness as a husband, his devotion as a father, and his loyalty as a friend, and that in all these relationships he merited the esteem and honor of all who knew him.

BE IT RESOLVED FURTHER, that a copy of these resolutions be sent to the family, one to the VIRGINIA MEDICAL MONTHLY, and a copy be filed with the minutes of the Staff.

Signed: THE STAFF OF THE LEWIS-GALE HOSPITAL.

Rear Admiral George Tucker Smith,

U. S. N., retired, Charlottesville, died March 18. He was seventy-three years of age and a graduate of the University of Virginia, Department of Medicine, in 1888. Dr. Smith was formerly a medical director in the U. S. Navy. He was a member of the Medical Society of Virginia.

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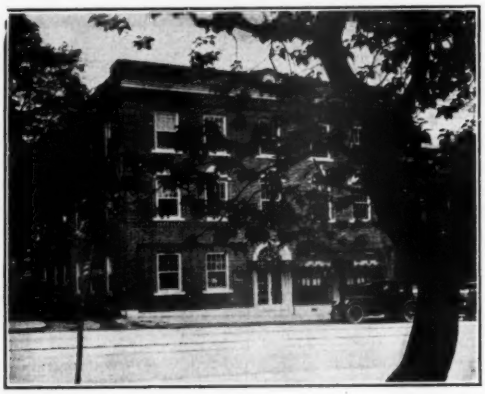

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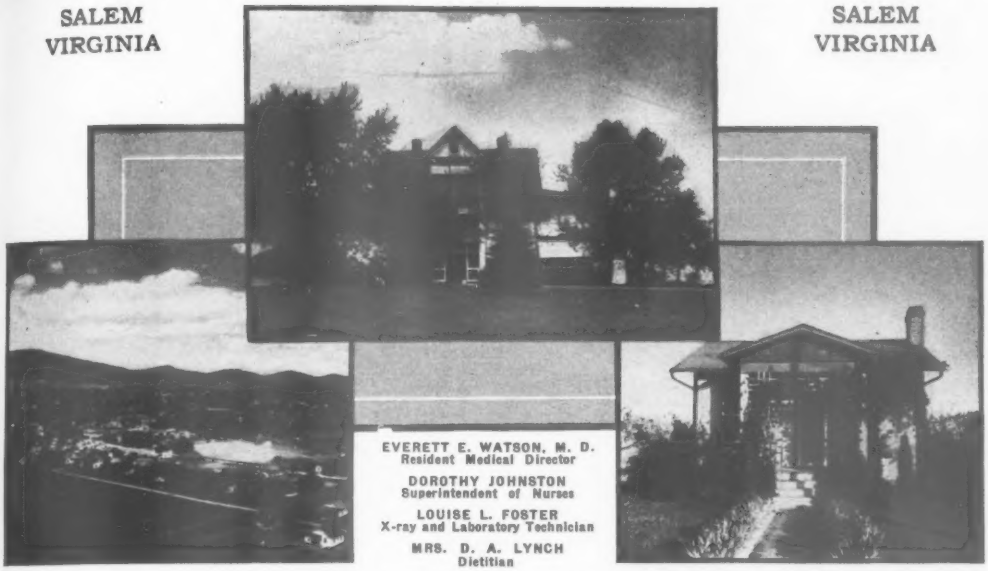

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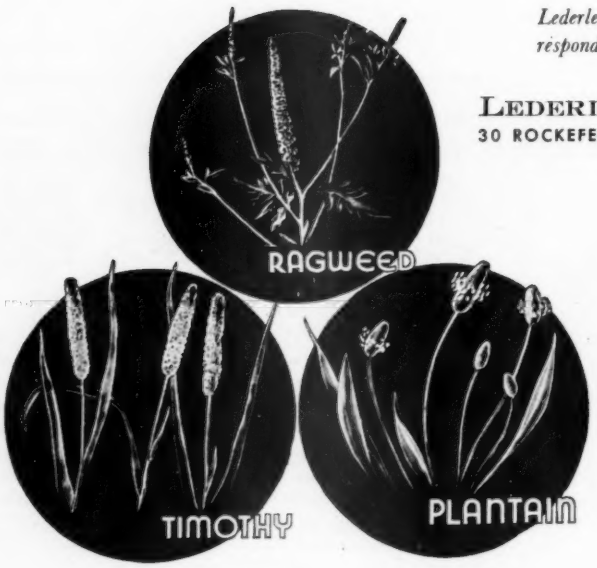

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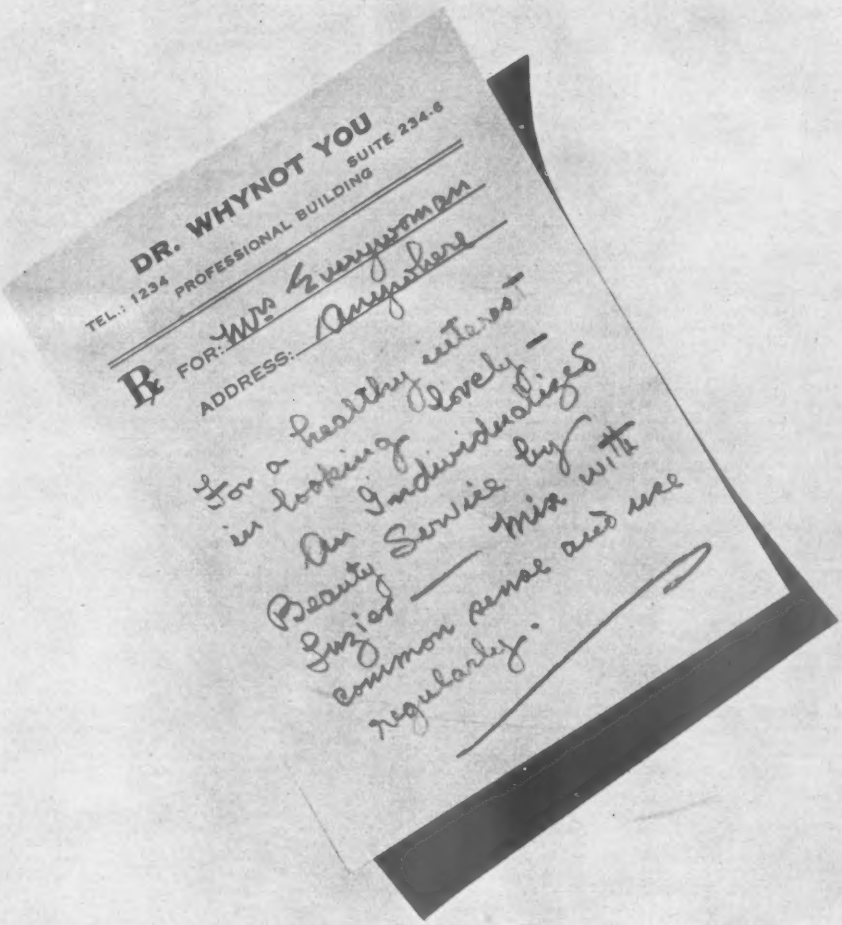

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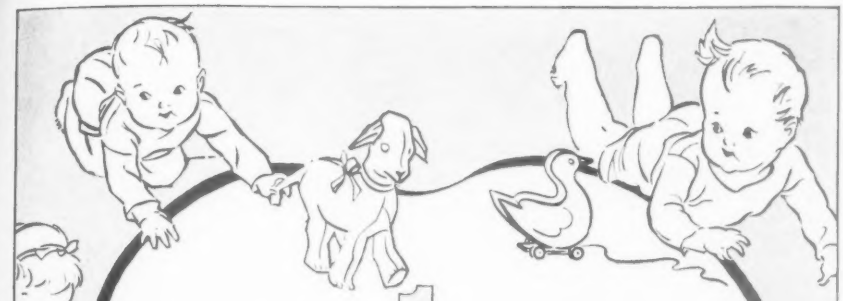

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